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ANNOUNCEMENT

The Archaeological Institute of America and the College Art Association jointly announce their sponsorship of a new series of monographs to appear as Supplements either of the AMERICAN JOURNAL OF ARCHAEOLOGY or of the ART BULLETIN. These Supplements would generally be studies exceeding the normal length of an article, and yet not of the length and scope of a book; they would be similar in format to these two periodicals. It is proposed that the new Supplements should appear at irregular intervals depending upon acceptance and financial arrangements. Manuscripts falling within the scope of the Archaeological Institute should be submitted to Professor Mary H. Swindler, Editor-in-Chief, American Journal of Archaeology, Bryn Mawr College, Bryn Mawr, Pa., for consideration by the Committee on Reseach and Publications. Manuscripts having to do with Early Christian, Mediaeval, Renaissance, Modern and Far Eastern Art, should be submitted to Professor Rensselaer W. Lee, Editor-in-Chief, The Art Bulletin, The Institute for Advanced Study, Princeton, N. J.

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ARCHAEOLOGICAL NOTES

A BRONZE EROS

THE Metropolitan Museum of Art has acquired a masterpiece of Hellenistic art. It is a life-size bronze statue of a little boy stretched out on a piece of drapery, fast asleep (figs. 1–4).[1] He is winged and across his chest hangs the baldric of his quiver; so he is intended for Eros, the god of Love. But aside from the attributes there is nothing godlike in the figure, only its loveliness. The artist has tried to represent the complete relaxation of a sleeping child, and he has admirably succeeded. The soft little body, the chubby legs, the drooping arm, the face with its closed eyes and parted lips, and above all the easy attitude convey the abandon of sleep. We almost hear the child breathe, so lifelike is the rendering. It must have been just such creations that Vergil had in mind when he wrote his famous line *excudent alii spirantia mollius aera*. Nevertheless, in spite of the realism, the Eros is not a direct copy from life. The stylizing and simplifying tendencies of early Greek art are still potent. For instance, the individual shapes of the limbs and body form an organic, well-proportioned composition, and the feathers of the wings going in different directions and the locks of hair with the little topknot make a studied design which we should hardly encounter in nature.

The preservation of the statue is exceptionally good. The only missing portions are the left arm from the shoulder, the right thumb, a small piece of the right wing, parts of the drapery, and presumably the quiver, on which the head rested; for a curious little remnant with sharp projections adjoining the hair (fig. 3) may perhaps be explained as the feathered ends of arrows inside a quiver. The right arm was broken off and has been reattached. There are a few modern gouges on body and hair and there is a crack in the upper right leg. The rock on which the figure doubtless rested, and which was perhaps also of bronze, is not preserved. We have supplied it in stone. Originally the surface of the figure must have gleamed with the golden color of bronze. The present crusty green patina is of course due to subsequent weathering. Some parts, for instance the left foot, have been cleaned, and the earthy incrustation which obscured the surface, especially the delicate design of feathers and locks (cf. figs. 6, 7), has also been removed. This cleaning was done previous to the acquisition of the statue by the Museum.

Technically the figure is of great interest. It is a fine example of hollow casting by the lost-wax process, with extraordinarily thin walls. As the under side is open, it affords a rare opportunity of examining the inside of an ancient bronze statue and of understanding the processes involved in the casting.[2] The statue was made in

[1] Acc. no. 43.11.4. Dimensions, as mounted: height 17 1/16 in. (43.4 cm.), length, 30 3/4 in. (78.2 cm.); width (at feet) 12 5/8 in. (32.1 cm.); greatest length (a caliper measurement) 33 9/16 in. (85.2 cm.). Thickness of walls 1/2 cm., more or less. *BMMA* NS. II, 3. pp. 118 ff. Figs. 1–6, 13 are from photographs by E. Milla.

[2] I want to thank L. Heinrich, armorer in the Metropolitan Museum, and Professor K. Lehmann-Hartleben for help in the technical analysis. The process of hollow casting is described at length by Kluge in Kluge and Lehmann-Hartleben, *Die antiken Grossbronzen*, 1927, pp. 91 ff, and by Malvina Hoffman, *Heads and Tales*, 1936, pp. 99 ff.

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FIG. 1.—BRONZE STATUE OF AN EROS IN THE METROPOLITAN MUSEUM
(Courtesy of the Metropolitan Museum)

(Courtesy of the Metropolitan Museum)

FIG. 2.—BRONZE STATUE OF AN EROS IN THE METROPOLITAN MUSEUM
(Courtesy of the Metropolitan Museum)

FIG. 3. — HEAD OF STATUE SHOWN IN FIG. 1
(Courtesy of the Metropolitan Museum)

FIG. 4.—DETAIL OF STATUE SHOWN IN FIG. 1
(Courtesy of the Metropolitan Museum)

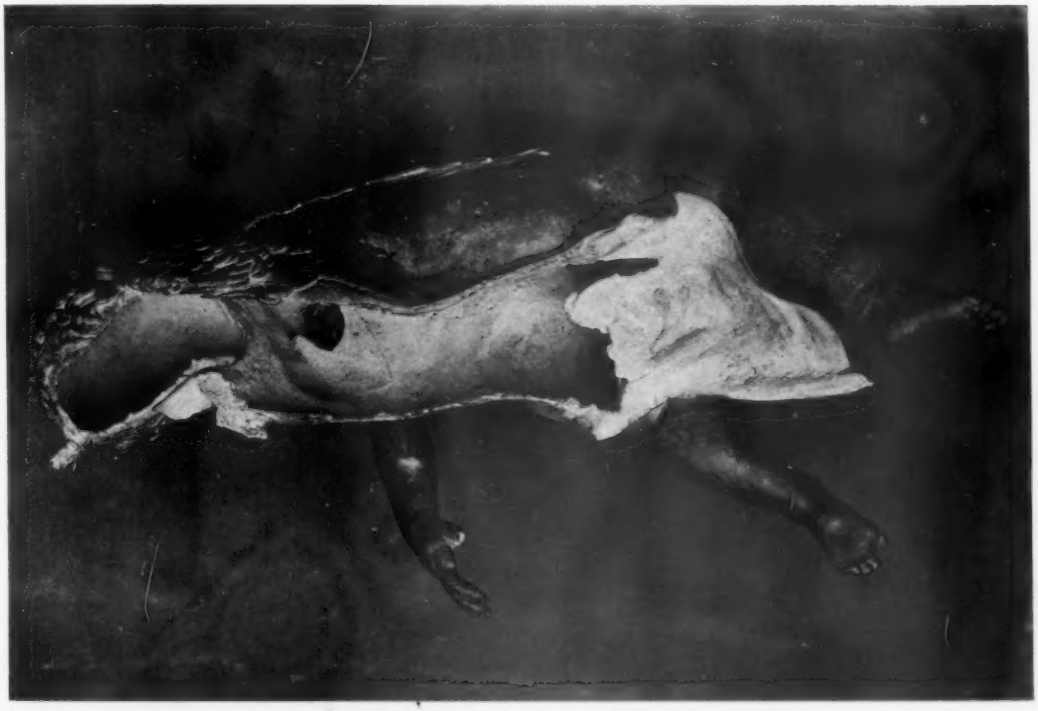

FIG. 5.—INSIDE OF STATUE SHOWN IN FIG. 1
(Courtesy of the Metropolitan Museum)

several pieces, of which the joins are clearly visible on the inside (fig. 5): (1) the head, (2) the right arm, (3) the right wing, (4) most of the drapery as preserved, (5) the remainder of the figure, including the left wing and the edge of the drapery below it. The missing left arm was apparently also cast separately, for on the left shoulder, near the tip of the wing, is an oblong hole with smooth edges, evidently made for a rivet which fastened shoulder to arm, and the under side of the wing is smooth and has an incision for a dovetail joint where the edge of the arm would have fitted.[2a]

The importance of the statue rests primarily on its beauty, but its rarity also makes it outstanding. Few large bronzes of the Greek or even of the Roman period have survived, for the metal was valuable and so was likely to be melted down in times of stress. The sudden destruction of Pompeii and Herculaneum and a few shipwrecks account for most of the ancient bronze statues known. Every new example is therefore peculiarly welcome.

Our Eros belongs to a familiar type. Marble statues and statuettes in Italy, Spain, France, England, Denmark, Germany, Austria, Greece, Turkey,[3] which approximate its composition and which have helped us to reconstruct the pose,[4] have been known for a long time (cf. fig. 8). A bronze statuette in this Museum shows the same motive reversed (fig. 9).[5]

All these figures are evidently of the Roman period and must be copies and adaptations of a famous Greek original. Is our figure that original? Its superiority in execution over all the other known examples makes this likely. The sensitiveness of the modelling, the crispness in the rendering of hair and feathers, above all the feeling of life which pervades the figure are the very criteria by which we distinguish Greek

[2a] We can see on the inside also the holes, surrounded by irregular ridges, in hair, abdomen, thigh, right buttock, etc., produced by the insertion of the metal pins, which had kept core and mantle in place and which were subsequently plugged with inserts (smoothed on the outside). Under the chin, where the chest had to be removed in cutting up the model, the core was roughly whittled back to receive a layer of wax, and the surface is rough at this point. For a like reason, under the right armpit the body wall had to be restored with an inset after casting. In several places, notably around the thighs, there are bubbly excrescences. Here the core evidently cracked through shrinkage in firing, allowing the metal to flow in. Here and there, for instance, on the left chest, the left great and little toes, are angular patches—ancient repairs for defects in casting. Another such repair, which had evidently been made on the left edge of the right wing, has fallen out and is missing; that we have not to do with a break is indicated by the smooth surface. After the casting the feathers, hair, eyelids, finger- and toe-nails were gone over with a chasing tool.

[3] For line drawings of some of these works cf. S. Reinach, *Répertoire de la statuaire* i (Clarac de poche), p. 353 f.. pls. 644, 644A, 644B; ii, pp. 490–492; iii, p. 142; iv, p. 300 f.; v, p. 186 f.; vi, p. 98; for descriptions and occasionally good illustrations cf. e.g. Stuart Jones, *The Sculptures of the Palazzo dei Conservatori*, p. 64 f., pl. 16; A. H. Smith, *A Catalogue of Sculpture in the British Museum* iii, no. 1677; Bulle, *Der schöne Mensch*, pl. 189; Conze, *Beschreibung der antiken Skulpturen*, Museen zu Berlin, nos. 143–149; Oikonomos, Ἐφ. 1923, p. 84, fig. 24; Shear, *Hesperia* vii, 1938, p. 351 f, fig. 36; Mendel, *Catalogue des sculptures*, Musées imperiaux ottomans ii, nos. 319–320.

[4] We have used for this purpose the bronze statuette in New York, which has the rock and drapery well preserved, and the marble statue in the Conservatori Palace, which is closest to our bronze in composition. From the description of the latter in the catalogue of the Conservatori Palace "drapery on l. and wing on r. roughly tooled out underneath in the shape of an arch, while remainder of under surface of the drapery is level," I judge that the level drapery gave the clue for the reconstruction of the pose. There is no specific statement, however, to that effect. My figure 8 is taken from a photograph kindly lent me by Professor Bieber.

[5] Richter, *Catalogue of Bronzes*, no. 132.

FIG. 6. — DETAIL OF STATUE SHOWN IN FIG. 2 AFTER CLEANING
(Courtesy of the Metropolitan Museum of Art)

FIG. 7. — DETAIL OF STATUE SHOWN IN FIG. 2 BEFORE CLEANING

originals from Roman copies. These standards are, in a measure, subjective and therefore fallible, but, in the absence of an inscription or other such concrete evidence, they have to serve. And if by chance our figure should be still another Roman copy, it would be such a superlatively and exceptionally fine one, so close to the original Greek work, that it would help us to visualize this original as we never have before. We can now appreciate why this composition became popular throughout the Roman Empire and was repeated again and again, serving occasionally also as a fountain figure or a tomb memorial. The conception is typical of the time, contrasting with the earlier ones of Eros as a god of Love and the companion of Aphrodite. And the lifelike rendering epitomizes a current ideal, recalling the many praises of realistic works of art by ancient writers of the later period—the grapes by Zeuxis, which were so real that birds flew at them; the curtain by Parrhasios, which deceived even Zeuxis; the horse by Apelles, at which a live horse neighed; and the partridge by Protogenes at which domesticated birds chirped.[6] A Greek epigram of the first century B.C. by Statilius Flaccus on a sleeping Eros might almost have been written about our statue:

"Thou sleepest, thou who bringest sleepless care on mortals; thou sleepest, O child of the baneful daughter of the foam, not armed with fiery torch, nor sending from thy backward-bent twanging bow the dart that none may escape. Let others pluck up courage, but I fear, thou overweening boy, lest even in thy sleep thou see a dream bitter to me."[7]

The theme was popular also in Renaissance times. We hear of a Sleeping Cupid of marble, carved by the twenty-year-old Michelangelo, which to his contemporaries had all the appearance of an ancient work.[8] Condivi,[9] Vasari, and others tell the story that Lorenzo de' Medici, grandson of Il Magnifico, admired it and at his suggestion it was antiqued and sold by an art dealer to Cardinal San Giorgio in Rome for 200 ducats, of which Michelangelo received but 30; when the Cardinal found out his mistake, he returned the statue and asked his money back. After passing through several hands it was presented by Cesare Borgia to Isabella d'Este. It is mentioned in an inventory as being in Mantua as late as 1627: "Un amorin che dorme sopra un sasso." In 1631 it was acquired by Charles I of England, together with other art treasures of the Gonzagas—and then it disappeared. It is a pity that we cannot compare it with our bronze. The dimensions were apparently about the same. We know that Michelangelo as a boy studied the antiques of the Medicis in the garden of San Marco. It seems probable that among them was an ancient version of our Eros which later served him as a model.[10]

Our statue is said to have been found long ago on the island of Rhodes. Rhodes was, of course, an important commercial and artistic center in Hellenistic times. By

[6] Pliny, *NH.* xxxv, 65, 66, 95; Aelian, *VH.* ii, 3; Strabo xiv, 2, 5 (p. 652).

[7] *Greek Anthology* xvi, (*Ap. Plan.*), no. 211 (tr. W. R. Paton in Loeb ed. v, p. 285).

[8] Cf. De Tolnay, *The Youth of Michelangelo*, p. 201 f. and the references there cited.

[9] *Vita di Michelagnolo Buonarroti*,[2] Florence, 1746, XVIII; de Tolnay, *loc. cit.*

[10] It has been suggested that Michelangelo's Cupid is reproduced in Renaissance paintings, for instance Tintoretto's "Vulcan surprising Venus and Mars," now in the Pinakothek in Munich. The Cupid there is similar to our bronze except for a variation in the position of the arms; cf. Wilde, *Mitteilungen des Kunsthistorischen Institutes in Florenz* iv, 1932, p. 53; de Tolnay, *op. cit.*, figs. 167, 168.

FIG. 8. — MARBLE STATUE OF A SLEEPING EROS IN THE PALAZZO DEI CONSERVATORI, ROME

FIG. 9. — BRONZE STATUETTE OF A SLEEPING EROS IN THE METROPOLITAN MUSEUM
(Courtesy of the Metropolitan Museum)

her situation near Egypt, the Syrian and Phoenician coasts, and the Greek Islands, she became the chief clearing house of Mediterranean commerce, and she retained this position until the second quarter of the second century B.C. Her most flourishing period, both politically and artistically, extended from the time of the battle of Ephesos and the repulse of the Egyptian fleet in that action (about 258 B.C.) to the battle of Pydna (168 B.C.), when she lost some of her Asiatic possessions and soon much of her trade to Delos—which was declared a free port by Rome in 166 B.C.[11]

To judge by the accounts of ancient writers, Rhodes was full of sculptures and paintings. How highly prized some of these were is brought home to us by a story told by Pliny the Elder [12] about Demetrios Poliorketes, who allegedly gave up the conquest of Rhodes for fear that he might destroy a famous picture by Protogenes.

The many signatures of sculptors found in Rhodes also point to a flourishing artistic activity.[13] These signatures are not only by Rhodians, but by men from other places, including Athens, Argos, Crete, Chios, Samos, Cyprus, Halikarnassos, Knidos, and Ephesos. A great trading center would naturally attract artists from all parts. Even, therefore, if we knew definitely that our statue was found in Rhodes, it would not necessarily be an example of Rhodian art.[14] B. Ashmole, in his discussion of the marble Eros in the Conservatori Palace (fig. 8),[15] suggested that the original might be the work of the Athenian sculptor Polykles. He based this theory on Pliny's statement that Polykles made the statue of a bronze Hermaphrodite, and the fact that the marble statues of a sleeping Hermaphrodite which have survived resemble somewhat our sleeping Eros. But we do not know that the type of Hermaphrodite which happens to be preserved goes back to Polykles' work, for we have no description of it, and the resemblance between the two sleeping figures is not, I think, so great that they are necessarily by the same sculptor. To judge by the new evidence supplied by our bronze, the individual forms of the features and the rendering of the drapery are different. The attribution to Polykles becomes less likely. But, as has been aptly said, the name of an artist is the least important thing about him. Whoever he was, his high ability is shown by the work which has survived him.

The original purpose of the statue is also uncertain. The subject might suggest that it was made for a private patron and we know that in this period wealthy individuals as well as rulers owned works of art.[15a] But genre subjects were not

[11] Rostovtzeff, *Social and Economic History of the Hellenistic World*, p. 169, and *CAH*. viii, pp. 619 ff.; Hiller von Gaertringen in *RE*. Supplementband v, s.v. *Rhodos*, cols. 783 ff.; A. W. Lawrence, *BSA*. xxvi, 1923–1924, 1924–1925, p. 68 f.

[12] *NH*. xxxv, 104. Cf. also Aulus Gellius, *Noct. att.* xv, 31,1.

[13] Cf. the list given by Overbeck, *Schriftquellen*, nos. 2006 ff.; Loewy, *Inschriften*, nos. 159 ff.; Hiller von Gaertringen, *op. cit.*, cols. 827 ff.

[14] On the cosmopolitan character of the art of Rhodes cf. Lawrence, *op. cit.*, p. 71: "Neither at this nor at any other time was there anything distinctive about Rhodian sculpture."

[15] *J.H.S.* xiii, 1922, p. 244, pl. x and in Beazley and Ashmole, *Greek Sculpture and Painting*, p. 84, figs. 183, 184.

[15a] Statues have been found in private houses in Delos and doubtless there were many more, for Delos was a much plundered site; cf. Chamonard in *Exploration archéologique de Délos* viii, 1, pp. 217 ff.; Rostovtzeff, *Social and Economic History of the Hellenistic World* ii, p. 798. For collections formed by rulers, e.g. Ptolemy II and the Pergamene kings, cf. Kallixeinos in Athenaios v, 196 E and M. Fränkel, *JdI*. vi, 1891, pp. 49 ff.

alien to the religious spirit of the Hellenistic age; so our statue might also have been a dedicatory offering in a temple.

Hellenistic works are notoriously difficult to date.[16] Whereas in the earlier Greek periods we have been able to establish a fairly reliable chronology based on a definite stylistic development, this criterion fails us in the last three centuries B.C. Instead of a consecutive development, we have a naturalistic, eclectic art with a variety of tendencies. And the works dated by outside evidence are comparatively few. The different dates ranging over several centuries which have been assigned to Hellenistic sculptures by eminent authorities are sufficient proof of our difficulties. In attempting to date the Eros, therefore, we must bear these difficulties in mind and allow sufficient leeway.

Our best method will be to compare the Eros with Hellenistic works which can be dated, at least approximately, on outside evidence—for instance the Alexander sarcophagus, the Tyche of Antioch, some of the sculptures dedicated by the kings of Pergamon, the portraits of Hellenistic kings, the sculptures from Lykosoura, etc. The datable bronzes which have lately been assembled and discussed by K. A. Neugebauer [17] are especially useful in this connection. A comparison with these works suggests that the Eros is a product of the middle Hellenistic period of about 250–150 B.C. Its realism is far enough removed from fourth-century traditions to indicate a considerable lapse of time, and there is no trace as yet of the classicist tendencies which made themselves felt from the late second century on. The classicisms and mannerisms of the sculptures from the shipwreck off Mahdia—[18] which are dated by Neugebauer, convincingly, I think, in the early first century B.C.—are fundamentally different from the easy naturalism of our sleeping Eros. In other words, the Eros is a product of the full-blown Hellenistic period, and may be placed in the same century as the Pergamene creations, more specifically with the little bronze Satyr in Berlin (fig. 14).[19] The latter, which can be assigned to a period not later than the first half of the second century—from the finding place and the shape of the syrinx—has the same fluidity of contour as our Eros, the same masterly and fresh observation of nature in the rendering of every detail. The same style is apparent

[16] For recent studies on the chronology of Hellenistic sculpture cf. especially Krahmer, *RM.* xxxviii–xxxix, 1923/24, pp. 138 ff.; A. W. Lawrence, *Later Greek Sculpture*, 1927; Pfuhl, *JdI.* 45, 1930, pp. 1 ff.; Horn, "*Stehende weibliche Gewandstatuen*," *RM.* zweites Ergänzungsheft, 1931; V. Müller, *The Art Bulletin* xx, 1938, pp. 359 ff.; Ashmole in Beazley and Ashmole, *Greek Sculpture and Painting*, 1932, pp. 66 ff.; Neugebauer, "Datierbare Entwicklungsphasen hellenistischer Bronzekunst," *Kongressbericht*, 1939, pp. 416 ff.

[17] *Op. cit.*

[18] Merlin and Poinsott, *MonPiot.* xvii, 1909, pp. 29 ff.; Merlin, *MonPiot.* xviii, 1910, pp. 5 ff.; *Catalogue du Musée Alaoui*, 1910, nos. 106–113, pls. LXV–LXIX. Studniczka, in his "Artemis und Iphigenie," *Abhandlungen der philologisch-historischen Klasse der sächsischen Akademie der Wissenschaften* xxxvii, no. v, p. 69, note 2, combined the bronze herm signed by Boethos of Kalchedon and the bronze statue of Eros-Agon in one group, and his reconstruction has been generally accepted. Neugebauer, *loc. cit.*, rightly points out that this Boethos cannot have been the same as the sculptor of the boy and the goose, which is clearly an earlier work of a different style. The name Boethos is common from the first half of the second century on, cf. *RE.* iii, s.v. *Boëthos*, cols. 601 ff. and Supplement iii, col. 210; Pape, *Griechische Eigennamen* i, p. 216.

[19] *Altert. v. Perg.* vii, 2, p. 369, no. 469; Furtwängler, "Der Satyr von Pergamon," 40. *Berl. Winckelmannsprogr.* 1880; Neugebauer, *Führer durch das Antiquarium* i, *Bronzen*, p. 61, pl. 51, and *Pantheon* xi, 1933, p. 564.

FIG. 10.—DETAIL OF THE DRAPERY OF THE HERMES BY PRAXITELES

FIG. 11.—DETAIL OF THE DRAPERY OF A JULIO-CLAUDIAN PRINCE IN THE METROPOLITAN MUSEUM
(Courtesy of the Metropolitan Museum)

FIG. 12.—DETAIL OF THE DRAPERY OF A JULIO-CLAUDIAN PRINCE IN THE METROPOLITAN MUSEUM
(Courtesy of the Metropolitan Museum)

FIG. 13.—DETAIL OF THE DRAPERY OF THE STATUE SHOWN IN FIG. 1
(Courtesy of the Metropolitan Museum)

also in the bronzes found by G. P. Oikonomos in a house at Pella which was probably destroyed during the Roman occupation in 168 B.C.[20] Here, too, in the realistically modelled heads of Dionysos and a mule we sense the same picturesque and lively style. And it was also in this period from 250 to 150 B.C. that relaxed, recumbent figures were particularly popular—witness the dying and dead Gauls, giants, and Amazons of the various Pergamene dedications.

FIG. 14.—BRONZE STATUETTE OF A SATYR FROM PERGAMON IN THE STAATLICHE MUSEEN, BERLIN
(*Altertümer von Pergamon* vii, 2, p. 369, fig. 467)

A study of the drapery on which the sleeping Eros lies is illuminating (fig. 13). The cloth is evidently a heavy woolen material, and its texture and folds are convincingly rendered. The flat surfaces, which are enlivened by frequent depressions, the rounded curving ridges, the short, deep grooves, the selvage border, combine to give a variegated, plastic, realistic effect. Though the composition lacks the grandeur of the draperies of Praxiteles' Hermes (cf. fig. 10) and of the Knidian Aphrodite,[21] many of the individual elements are similar; but to these have been added others, for instance, the so-called folding creases (or are they a pattern?), so popular in middle Hellenistic works, (cf. the figures on the frieze of the Pergamene Altar). This style of drapery persisted into Roman times. In the drapery of the bronze Julio-Claudian prince,[22] supposedly also from Rhodes, the individual elements—depressions, ridges, grooves, and creases—and the general composition are much the same (cf. figs. 11–12). But, whereas the cloth of the Eros is soft and pliable, the mantle of the Roman statue seems hard and stiff. Among the many indications that our newly acquired Eros is of Greek not Roman workmanship, this comparison with one of the finest products of Hellenizing Rome is one of the most eloquent.

All these comparisons, then, suggest a date for the Eros in the years 250–150 B.C. But this is a long span. Can we be more precise? As we have pointed out, in the present state of our knowledge, precision in dating Hellenistic sculptures is difficult. Some will no doubt see analogies between the Eros and Boethos' boy strangling a goose, as well as with other important Hellenistic works. They will compare, for instance, the drapery of the Eros with that of the Nike of Samothrake, or his relaxed attitude with that of the dead Amazon from the smaller Pergamene group. But such

[20] *AM.* li, 1926, pp. 75 ff. pls. VIII–X.

[21] Rizzo, *Prassitele*, pls. LXXI, LXXVII, LXXXI–LXXXIV (Knidian Aphrodite), XCIX, CII (Hermes); Carpenter, *AJA.* XXXV, 1931, p. 253, fig. 3 (Hermes). My fig. 10 is taken from a photograph kindly lent me by Professor Carpenter.

[22] Richter, *Catalogue of Bronzes*, no. 333.

comparisons hardly help. The date of Boethos is uncertain,[23] and we are still not sure whether the Nike dates from the third or the second century,[24] or whether the Pergamene figures were dedicated in the reign of Attalos I (end of third century) or that of Attalos II (middle of second century).[25] So it seems best to content ourselves, for the present, at least, with the wide margin we have suggested.

We can, therefore, welcome the newly acquired Eros as an outstanding example of the middle Hellenistic period by a sculptor who could combine some older traditions with the realistic and picturesque style of his time. He could hardly have foreseen that his creation would find such favor that it would be repeated in countless variations for many centuries after him.

METROPOLITAN MUSEUM OF ART,
NEW YORK

GISELA M. A. RICHTER

THE STATUE OF A RAM IN TOLEDO

THE statue of a ram (fig. 1), given to the Toledo Museum of Art by Clement O. Minigen in 1928,[1] came originally from Rome, Vente Janiello,[2] and was brought to New York where it was sold at auction together with the marbles from the Hope Collection by the Anderson Galleries in 1921.[3] It is of the best Parian marble, while the restorations are made in coarse island marble. These restorations comprise the ears, the ends of the horns, the base, the palm tree, the left hind part with the tail, all feet and all legs with the exception of the right hind leg. The head has been worked over in modern times. The restorations were probably made in Rome before the auction. The statue broke into pieces again when it was shipped to Toledo, and thus it was again repaired in Toledo.

The statue represents the ram which carried Odysseus from the cave of Polyphemus. According to *Odyssey* ix, 425 ff., after having blinded Polyphemus, Odysseus bound his companions under the rams and suspended himself under its woolly belly, while he wrapped his hands firmly into the curls of the fur.

[23] On the various artists named Boethos cf. *RE.* iii, cols. 604 ff. and Supplement iii, col. 210; also my note, 18, p. 375.

[24] The combination with the Nike of an inscription - - ς Ροδιος, datable in the early second century, which was suggested by H. Thiersch (*Nachrichten von der Gesellschaft der Wissenschaften zu Göttingen*, phil.-hist. Klasse, 1931, pp. 337 ff.) has not been generally accepted.

[25] A date around 200 was that sponsored by most authorities. For recent discussions of the later date cf. especially Horn, *RM.* 52, 1937, pp. 150 ff.; Schober, *RM.* 54, 1939, pp. 82 ff.; V. Müller, *The Art Bulletin* xx, 1938, p. 403. For a revival of the theory that the statues were begun by Eumenes II soon after 200, cf. Schweitzer, *Leipz. Abh.* 43, 1936, 4. Heft, pp. 96 ff.

[1] *Museum News* no. 52, September 1928. H., with base, 1.25 m.; without base, 1.10 m.; of ancient parts, 0.65; l.1.30 m. I am indebted to President Gosline and Director Blake-More Godwin, who kindly permitted me to publish the statue.

[2] *Sales Catalogue Vente Janiello*, April, 1911, pl. 28; Salomon Reinach, *Répertoire de la Statuaire* v, p. 447, 2. He gives the height as 1.25 m.

[3] *Sales Catalogue of the Hope Collection*, in the Metropolitan Museum of Art Library, p. 141, no. 792, with illustration. Reinach, *op. cit.* vi, p. 161, 1 and *GBA.* 1927, p. 301. Reinach failed to see that it was the ram published by him before. See note 2.

FIG. 1.—ROMAN STATUE OF A RAM. THE TOLEDO MUSEUM OF ART
(Courtesy of The Toledo Museum of Art)

FIG. 2.—STATUE OF RAM WITH ODYSSEUS. VILLA ALBANI, ROME

FIG. 3.—STATUE OF POLYPHEMUS WITH DEAD COMPANION OF ODYSSEUS. CAPITOLINE MUSEUM, ROME

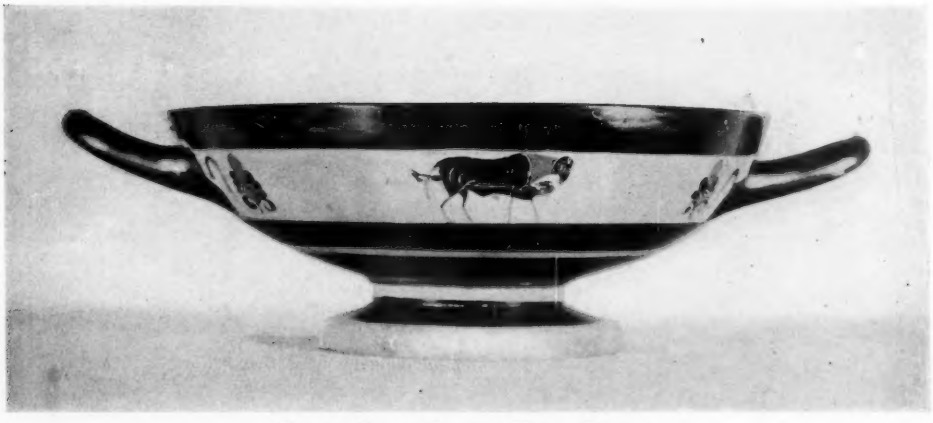

FIG 4.—BLACK-FIGURED KYLIX. TOLEDO
(Courtesy of The Toledo Museum of Art)

There in the cave
Were well-grown rams of thickest wool,
Fair beasts and great, and dark of fleece.
These silently I bound together. . . .
By threes together and the midmost
Bore under him a man. . . . And I
Myself now seized upon a ram,
The best of all the flock, and grasped
His back from underneath, and lay
Beneath his shaggy belly; there
Twisting my fingers deep within that wondrous fleece,
I hung, face upward . . .
Now to the door, last of them all,
The great ram slowly came, weighted down
With heavy fleece and with the burden
Of me and my shrewd plans. . . ."

The attachments for the hands are clearly seen in the thick clusters of the fleece of the ram at both sides and the hollow for the head is also clearly seen in front of the breast of the ram. An attachment for the one leg of Odysseus appears at the right hind leg of the ram. One can thus reconstruct under the ram an Odysseus like the one hanging under the ram in the Villa Albani (fig. 2).[4]

Besides the ram with Odysseus, there existed a group of Odysseus handing the cup with wine to Polyphemus (fig. 3), in accordance with *Odyssey* ix, 345 ff. and one with Odysseus blinding the Cyclops, following *Odyssey* ix, 375 ff.[5] The series was probably created in the Hellenistic period of the second century B.C., while the Roman copies were made in the first century A.D., perhaps in the Augustan period. The ram in Toledo is thus the fragment of an important Graeco-Roman series of groups which illustrated the adventures of Odysseus.

It is interesting to note that the flight of Odysseus from the cave of Polyphemus was very frequently represented in the archaic period. The oldest monument which shows it is the ivory situla from Chiusi.[6] There follow the picture on the shoulder of an oinochoe from Aegina,[7] a bronze relief from Delphi,[8] a terracotta from Tegea [9] and then more than twenty Attic black-figured vases of the sixth century B.C. The

[4] No. 497. *Clarac, Musée de Sculpture*, pl. 833 C = our fig. 2; Reinach, *op. cit.* i, p. 503, 5; cf. i, p. 502, 5, in Palazzo Doria-Pamphili; Arndt-Amelung-Lippold, *Einzelaufnahmen antiker Skulpturen*, 2281 and 4019, no. 497, Series XIV A, p. 53. I asked Lippold for a photograph of the Albani ram which he mentions, but he wrote that he could not send it.

[5] Amelung, *Sculpturen des Vatikanischen Museums* i, pp. 790 ff.; *Museo Chiaramonti*, no. 704, pl. 85; Stuart Jones, *Catalogue of the Capitoline Museum*, p. 36 f., Atrio no. 35, pl. v = our fig. 3; Reinach, *op. cit.*, i, pp. 501, 5 and 502, 4; Franz Müller, *Die antiken Odyssee-Illustrationen*, pp. 15 ff. and 30.

[6] *MonAnt.* x, pl. 39 A; Boehlau, *Aus ionischen und italischen Nekropolen*, p. 119, fig. 64.

[7] Pallat, *AM.* xxii, 1897, pp. 324 ff., figs. 40–41, pl. 8.

[8] Inv. no. 2560; *RA.* xxxi, 1897, pp. 30 ff., fig. 4; *Fouilles de Delphes* v, p. 125 f., no. 680, fig. 469.

[9] *RA.* xxxi, 1897, p. 32.

examples have been collected by Heydemann,[10] Bolte,[11] Jane Harrison,[12] Perdrizet,[13] Franz Müller [14] and Stephen Luce.[15] Another must be added: the Little Master kylix (fig. 4) in the Toledo Museum of Art, exhibited in the same room with the marble ram.[16] It has identical representations on both sides. It is a black-figured "band-cup," without stem, of a type which can be dated in the third quarter of the sixth century.[17] Later than this large group of vases is only one red-figured vase, a kylix formerly in the Castellani collection, dating from the end of the sixth century.[18] Then the flight, as well as the intoxicating and the blinding of Polyphemus, like other grotesque scenes from the Odyssey, disappear from art, though they live on in Euripides' satyr play *Kyklops* of about 410 B.C.

After a gap of two hundred to three hundred years, the motif is taken up again in late Hellenistic and Roman art.[19] We have beside the marble group, a relief vase,[20] a mosaic in the Museo delle Terme in Rome,[21] and lamps.[22] We find on these more frequently the intoxicating of Polyphemus, who has just killed for his meal one of the companions of Odysseus (cf. fig. 3) and now receives the wine cup from Odysseus,[23] a scene also represented on Etruscan ash urns, terra sigillata vases and Roman sarcophagi.[24]

Thus, after the interregnum of serene classical art which discards all grotesque features or relegates them to the lower literary and artistic realms, Hellenistic art again enriches life with the more humorous and many-sided representations taken from Homer's masterpiece.

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[10] "Monumenti relativi all' Odissea" in *AdI.* xlviii, 1876, pp. 347 ff., pl. R; *MonInst.* i, pl. VII, 2–4; Reinach, *Répertoire des Vases peints* i, pp. 64, 5–6 and 337, 3–4.

[11] *De Monumentis ad Odysseam pertinentibus*, 1882, pp. 2 ff.

[12] *JHS.* iv, 1883, pp. 248 ff., figs. 1, 3, 5, 6, and list facing p. 259. Cf. also A. Schneider, *Der troische Sagenkreis*, pp. 59 ff.

[13] *RA.* xxxi, 1897, pp. 28 ff. figs. 1–3; cf. Pfuhl, *MuZ.* i, pp. 315 and 327, no. 5; iii, fig. 285.

[14] Franz Müller, *op. cit.* pp. 26 ff. [15] *AJA.* xvii, 1913, pp. 8 ff.

[16] Mus. No. 27, 97. Bought in 1927 from Joseph Brummer. Said to come from the Alfred Kann collection. H. 2¾ inches, D. 7⅛ inches. I owe the information and the photograph to the kindness of Mrs. Doreen Canaday Spitzer and Mr. Blake-More Godwin, Director of the Toledo Museum. Other kylikes with Odysseus under the ram are in the Fitzwilliam Museum in Cambridge (W. Lamb in *CVA.* Cambridge, Fitzwilliam Museum, p. 25, pl. xix, no. 3. On B Odysseus is not represented again, but one of his companions) and in Würzburg (Langlotz, *Griech. Vasen in Würzburg*, p. 77, no. 407, pl. 113, with Polyphemus).

[17] The name has been given by Buschor in *FR.* iii, p. 219 and accepted by Beazley, "Little Master Cups," *JHS.* lii, 1932, pp. 167 and 187 ff.; cf. *ABF.* p. 17, and Attic Black Figured Vase Painters—Ms. in the hands of Gisela Richter, Met. Mus. of Art, Ch. VI, on "Little Master Cups."

[18] Jane Harrison, *op. cit.*, pp. 250 ff., fig. 3. [19] Franz Müller, *op. cit.*, p. 30.

[20] Pagenstecher, *Die Calenische Reliefkeramik, Ergänzungsheft zum JdI.* viii p. 32 f., no. 17.

[21] Helbig-Amelung, *Führer durch Rom* [3] ii, no. 1440. [22] *AA.* 1908, p. 228.

[23] Benndorf, *AdI.* 1863, pp. 421 ff. Tav. d'agg.; O. Engelmann, *Bilderatlas zu Homer* ii, pl. VI, 35; Gnirs, *JOAI.* x, 1907, Beiblatt, pp. 56 ff. fig. 7; Sieglin-Schreiber, *Ausgrabungen in Alexandria* i, 1908, "Die Nekropole von Kôm-esch-Schukafa," p. 313 pl. LXX, 2; Robert, *Die antiken Sarkophagreliefs*, fig. on p. 160; Wiegand and Schrader, *Priene*, p. 453 f., no. 188, fig. 561; La Blanchet et Gauckler, *Cat. du Musée Alaoui*, p. 168, no. 192, pl. 36; Helbig-Amelung, *Führer durch Rom* i [3], p. 70, fig. 9; *AJA.* 1908, p. 120.

[24] Brunn, *Relievi delle Urne Etrusche*, pl. 86, no. 2; Müller, *op. cit.*, p. 18 f., fig. 2; Robert, *op. cit.* ii, pp. 158 ff., pl. LIII, nos. 147–149.

THE TEMPLE OF ARES AND THE ROMAN AGORA

In the course of a very interesting and detailed investigation of the Tower of the Winds and the Roman Agora at Athens,[1] H. S. Robinson reaches some conclusions which are contrary to my inference that this had been the site originally occupied in the Periclean period by the Temple of Ares.[2] In my opinion, the fact that the temple was transferred and rebuilt in the old Greek Agora during the Augustan period, and specifically at about the time of the building of the Odeion in the Agora (presumably begun at the time of Agrippa's visit in 14 B.C.)[3] or shortly thereafter (perhaps following the adoption of Lucius and Caius by Augustus in 12 B.C., the rebuilt temple being dedicated to Caius), suggests that its previous location had been the site which was cleared for rebuilding at this very time, the area now covered by the Roman Agora, of which the west entrance gateway seems to have been dedicated about 10 B.C. in honor of Lucius Caesar.[4]

Robinson comes to the conclusion that the Roman Agora had already been erected, in some form at least, much earlier than the date of the rebuilding of the Temple of Ares, which, therefore, must have been removed from some other site, such as that of the Library of Hadrian. But, in view of the fact that the ground thus cleared by the removal of the temple would hardly have been allowed to wait nearly a century and a half for the library, this alternative is far less attractive than the chronological and fraternal relationship which gave rise to my suggestion. We may, therefore, examine more closely the evidence for the argument that the temple could not have occupied part of the area of the Roman Agora as late as 14–10 B.C. It is to be understood, however, that no judgment can be final until the area is properly excavated.

The arguments adduced for the existence of a late Hellenistic or early Roman Agora are the following: (1) the Tower of the Winds, which might even be dated as early as the first half of the first century B.C. (but in any case antedates 37 B.C.) is a building of such nature as to suggest that it would have been erected in the neighborhood of an Agora; (2) the west gate of the Agora, dating from about 10 B.C., seems to have been erected against an already existing outer wall of the Agora, as indicated by a rough joint surface rising vertically along the anta and a protective strip directly above this on the epistyle; and (3) as portions of the earlier architecture it might be possible to utilize the triglyph-metope blocks employed at second hand in the walls of the Agora shops, perhaps coming from the original outer Agora wall.

To take the third argument first, my preference for a fifth-century date of the frieze blocks has been mentioned,[5] but perhaps some explanation of my reasons should be added. The lower beds of these blocks contain a special peculiarity, which proves, even though they are not now of complete length, that they must originally have been unusually long blocks (unsuitable for a wall) and that they rested upon

[1] *AJA.* xlvii, 1943, pp. 291–305. [2] *Hesperia* ix, 1940, pp. 50–51.

[3] In my article (*op. cit.*, p. 51, n. 118) the date of Agrippa's visit was given as 16 B.C., following Reinhold; at that time, however, I overlooked an analysis of Agrippa's inscriptions which I had previously undertaken in connection with the great pedestal on the Acropolis, leading to 14 B.C. as the preferable date.

[4] My suggestion that the archon Nikias should be dated 11/10 or 10/9 B.C. is followed by Robinson. On the other hand, in a recent article on the archons of the imperial age (*Hesperia* xi, 1942, p. 82), Oliver retains the previously accepted date of ca. 10/9–2/1 B.C. [5] Robinson, *op. cit.*, p. 302, n. 26.

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even longer epistyles which spanned disproportionately wide intervals (again unsuitable for a wall). In other words, the bottoms of the ends of the blocks are undercut for a height of 0.002 m. and for a distance of 0.57 m. from the joints,[6] in order to take the weight of frieze, cornice, and roof off the central portions of the epistyles, concentrating the load above the adequately supported ends of the epistyles by means of a cantilever system analogous to that employed over the central intercolumniation in each façade of the Propylaea [7] and in some other fifth-century instances of balancing. This mode of construction, together with the workmanship, implies that the pieces come from some fifth-century colonnade later than the Propylaea, probably facing the old Greek Agora—the spacing of the columns was identical (within 3 mm.) with that in the Stoa of Zeus Eleutherios—and thus without relation to a hypothetical late Hellenistic or early Roman Agora.

The second argument seems to arise merely from a difference of construction rather than of date. The projecting portico of the west Agora gate is of marble, but the wall from which it projected, as Robinson shows, was of poros; it is, therefore, a matter of the junction between these two materials. The fact that the outer face of the anta was set into the poros wall only for a slight distance, there terminating in a continuous vertical joint rather than the alternating projections and recessions (breaking joints) found in proper bonding, is due to the fact that the *inner face* of the same anta was obliged to terminate at this vertical joint, the inner edge of the anta itself, against which abutted the flank wall economically constructed of poros. In other words, the bonding desirable for strength would have been incompatible with design, so that the anta was merely set into the rebated corner of the poros wall, with the capital alone bonded in. Thus the marble gate and the poros Agora wall would seem to be contemporary, of about 10 B.C.

This leaves us with the third argument, the earlier date of the Tower of the Winds. But it is admitted that the time of the visit of Julius Caesar, 47 B.C., would be sufficiently early for the tower, such being the date that Robinson favors; and since this was the very moment that the Agora itself was planned, there can be little objection to the assumption that all this construction was contemporary. Presumably the tower and the scheme for the Agora date from 47 B.C.; the tower may have been completed promptly, about 44 B.C., at the time when work on the Agora itself was suspended. The Temple of Ares may have continued to stand on the Agora site for thirty years longer, until pressure for completion of the scheme in the time of Augustus necessitated the demolition of the temple and its reconstruction much farther west, at the point in the old Greek Agora where Pausanias saw it later.

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[6] My attention was called to these relieving surfaces on the poros frieze blocks by B. H. Hill. It is evident that each block contained three triglyphs and two metopes, with a length of $(3\times0.402)+(2\times0.603)=2.412$ m., resting on a bed only 1.206 m. long above each column. Thus the undercutting extended $\frac{1}{2}(2.412-1.206)=0.603$ m. from the outer edge of the triglyph at each end of each block, or 0.57 m. from the recessed joint surface behind the triglyph edge. Between every pair of long blocks must have been a short block of 0.669 m., with 0.603 m. of its surface appearing as a metope, above the middle of each epistyle. The epistyles below would have been $(3\times1.005)=3.015$ m. in length. Thus the construction was slightly different from that in the Propylaea, where the metopes were of marble and the separate metope above the middle of the epistyle was a thin slab masking the cantilever joint behind.

[7] *AJA.* xiv, 1910, pp. 146–151.

BLACK-FIGURE POTTERY AT CHICAGO

THIS pottery is in the Classical Collection at the University of Chicago. Except for no. 12, all of it formerly belonged to Professor F. B. Tarbell, who received a number of pieces from Mr. E. P. Warren in 1902. Of these he made an inventory; its numbers are cited below. Some or all of his other pieces likewise came from Mr. Warren; Professor Beazley tells me that this is true of six red-figure fragments not included in the inventory [1] and of a fragment of a black-figure dinos.[2]

All the pieces listed are illustrated, and the numbers of the figures correspond to those of the list. Except for the dinos fragment just mentioned, all the pottery in the Collection that is considered to be Attic black-figure is included.

1. Amphora (fig. 1). Ht. 0.23, diam. of mouth 0.105. Top of lip and bottom of vase are unpainted; inside of neck black, rest of interior unpainted. Many small injuries on surface, some apparently deliberate, and much paint lost where the surface is undamaged. The vase was very badly broken and shattered when it reached Professor Tarbell and it remained in that condition until 1940, when it was put together by Mr. Millard Rogers, then Fellow in the Art Department. Tarbell noted that some pieces were lacking, though the description in the Forman catalogue contains no mention of deficiencies or defects.

A: Combatants parted. A youth seizes with his right hand the right shoulder of a bearded man who wields a sword with his right hand. The youth's left arm is bent at the elbow, confining the arm of the man. Another youth holds the swordsman around the waist with his left arm and seizes his right wrist with the other hand. (Smith thought that the youth had both arms around the man's waist and that the hand visible near the sword-hilt belonged to the swordsman; this is surely wrong, and indicates that Smith saw this part of the surface, at least, in a condition no better than its present one). In the center a bearded man looks to left and moves to right, his arms bent and his hands visible in front of his body. Then another bearded man, holding a sword in his left hand and a scabbard in his right, is restrained by two youths. Each youth has one arm bent at the elbow, confining one of the man's arms, and holds one of his wrists with the other hand. All figures on this side of the vase are nude.

B: Departure of warrior. A youth with a small mantle covering the left arm; a woman with a garment raised over head and her left hand raised inside the garment; a bearded warrior with Corinthian helmet, greaves, round shield, and two spears; a clothed man with white beard and long white hair; another youth, with a small mantle on his left arm, moving to right but with head turned to left. Each youth carries a spear, the old man a staff.

No ornament between pictures. Purple: ridge at base of neck; on A, hair, beards, spots on scabbard at right; on B, alternate folds of garments, rim of shield, crest of helmet, apparently fillets worn by youths. White, on A, spots on both scabbards,

[1] Nos. 5, 19, 21, 23, 24, 40 in the list, *AJA.* 1938, pp. 345 ff. No. 5 was from Tarquinia; no. 19 from Athens, bought of Hartwig; no. 21 from Athens; nos. 23, 24, 40 bought of Lambros, so probably from Greece.

[2] *Art in America* 1941, pp. 208–216.

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FIG. 1A.—AMPHORA. OBVERSE

FIG. 1B. — AMPHORA. REVERSE

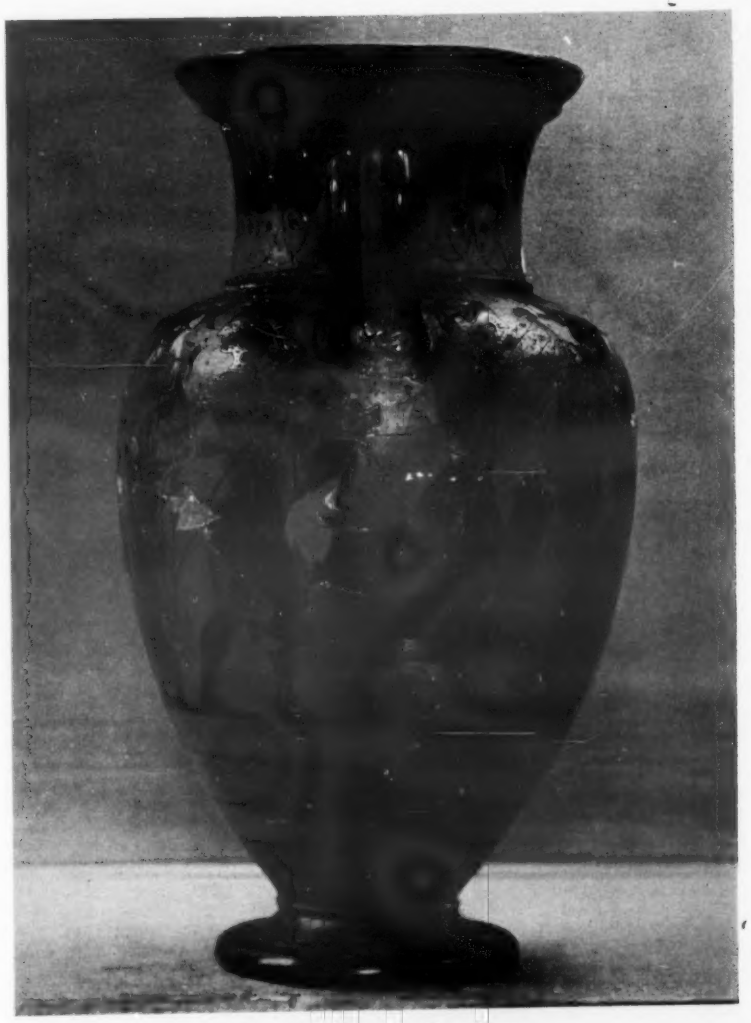

FIG. 1C. — AMPHORA. SIDE VIEW

sword-straps and hilts; on B, woman's face and feet, dots below crest of helmet, device on shield (mostly lost). Incision used copiously for inner details and crossing contours; sometimes for other contours, including faces of central figure and figure next him on the right, on A, and of figure at extreme right on B, and many legs and feet.

Walters (*History of Ancient Pottery* ii, p. 133, note 6) and Pfuhl (*MuZ.* i, p. 327) mention our vase along with others which may depict the quarrel between Ajax and Odysseus over the arms of Achilles. An oinochoe in the Louvre, with the kalos-name Neokleides (F 340; *WV.* 1889, pl. V, no. 2; Robinson-Fluck, *Greek Love-Names*, p. 155, no. 191; Pfuhl i, p. 272), and a hydria in the British Museum (B 327; *CVA.* III H e, pl. 86, no. 3; Beazley, *Attic Black-Figure*, pl. 14, p. 27) have scenes similar to that on our vase, particularly the former; compare also *CVA.* Gallatin (U. S. A. fasc. 8), pl. 36, no. 1, assigned by Beazley to the Swinger. In none of them is there anything to identify the disputants.

Our amphora, unusual in shape and in scheme of decoration, has two close kinsmen: one in the Vatican (Albizzati, *Vasi Antichi Dipinti del Vaticano*, p. 151, no. 366) and one in Brussels (R322 bis; *CVA.* III H e, pl. 10, no. 1). All three have almost the same size, almost the same shape, and lines below the pictures. Jacobsthal (*Ornamente griechischer Vasen*, p. 48, note 75) mentions the Brussels amphora as related to a group which he assembles (*op. cit.*, p. 50, note 81, pls. 26–27). The resemblance consists only in the presence of horizontal lines, heavier than in our trio, below the pictures in some of the group, and this hardly indicates any relation in origin. The shape of our amphoras, aside from the small handles, is not far from the Nolan, but the discussions of black-figure quasi-Nolans (Luce in *AJA.* 1916, pp. 439–459; Langlotz in *Phil. Woch.* 1923, 1023) contain nothing relevant. In fact, I have not seen any pieces that are close to these three in form or ornament, though analogies for some of their features can be found.

In the following amphoras, and doubtless in some others, the middle reed of the triple handle is unpainted, as in the Chicago and Vatican vases: Metropolitan Museum GR 533 and GR 546; British Museum B 213 (*CVA.* pl. 50, 2; Jacobsthal, pl. 22 b) and B 212 (*CVA.* pl. 50, 1; Jacobsthal, pl. 24 c); Madrid 10917 (Leroux no. 74; *CVA.* pl. 17, 2); Brussels A 130 (*CVA.* pl. 7, 1); a double amphora or psykter in the Boston museum. The last three are attributed by Beazley to the Swinger, British Museum B 212 to the Princeton Painter (*BSA.* xxxii, pp. 12–17). The Brussels member of our trio has double handles, which are rare.

Amphoras with normal lotus-chains on the neck are few; von Bothmer has called my attention to two (*Clara Rhodos* iii, pp. 265f; *Burlington Magazine* xxxix, November, 1921, advertising page xv). There is a lotus-chain of a sort in Louvre F 226, assigned by Beazley to the Swinger (Pottier, *Album*, pl. 80; *CVA.* pl. 42, 1–4); also in Jacobsthal, pl. 12; and often in the Chalcidian Phineus group (Rumpf, *Chalkidische Vasen*, p. 110) and the pseudo-Chalcidian Polyphemos group (Rumpf, pp. 160–170). The Polyphemos group furnishes the only parallel observed for eyes on the neck, as in the Vatican vase (Jacobsthal, pl. 13 a; Rumpf, pls. 202 f., p. 166). The ornament on the neck of the Brussels vase, though a lotus-palmette band, is unusual in design, particularly in its use of lotus buds instead of flowers. Analogies are pre-

sented by the ornament of British Museum B 212, Madrid 10917, the eponymous amphora of the Princeton Painter (*BSA.* xxxii, pl. 9, 2), a signed Nikosthenic amphora (Hoppin, *HBF.* p. 283; *CVA.* Villa Giulia, III H e, pl. 23); and particularly by an amphora without other decoration, at the university in Cracow (*CVA.* Poland II, pl. 81, 8).

The handle-ornament of the Vatican and Brussels vases is the least unconventional feature of our group, yet close analogies are none too numerous: British Museum B 212; Munich 1473 (Jahn 1153; Jacobsthal, pl. 28) and 1474 (Jahn 1257; Jacobsthal, pl. 24 a); British Museum B 260 (Jacobsthal, pl. 39 d; *CVA.* pl. 64, 1); Vatican 526.1, signed by Nikosthenes (Hoppin, *HBF.* p. 275; Albizzati, pl. 48, no. 362); a kylix in Rhodes (*CVA.* pl. 16, 1; *Clara Rhodos* iii, p. 244, fig. 242); skyphoi in Bonn (*AA.* 1935, 467 ff., no. 37, fig. 49) and Athens (Ἐφ. 1896, pl. after p. 244).

For the lotus which appears in the handle-ornament on the Brussels vase no exact parallels have been noted, but a fairly close analogy is found on the Leyden stamnos with decoration in applied red (Jacobsthal, pls. 89–90).

It is very probable that all three amphoras were made by one "shaper." (This term is used, in preference to the ambiguous "potter," to denote the man who actually shaped the vase on the wheel). And it is equally probable that one man designed the decoration of all three. Hence there is a considerable presumption that all were painted by one man. Study of the painting does not altogether destroy this presumption, but it certainly does not confirm it. The combat scene on our vase, with its vigorous action and varied profiles, has little resemblance to the pictures on the other vases, and they do not resemble each other as closely as might appear at a glance. Both of them could be placed, by the style of drawing, in the vicinity of the Swinger, whose vases occur in the lists of analogies given above; but there is little suggestion of his style in the Chicago amphora, which rather suggests some of the things assigned to Lydos.

The connections with Nikosthenes and with the Leyden stamnos indicate a date somewhat later than would be suggested by the figure style. Probably about 530.

Warren-Tarbell, 4; Cecil Smith, *The Forman Collection*, p. 51, no. 298.

2. Loutrophoros amphora (fig. 2). Ht. as restored 0.55. As usual, no bottom. Inside of rim (which is partly preserved, though not visible in the photograph) black and purple bands. Outside of rim, black key-pattern. Below that, white wavy line. On neck, male figures, some at least moving to right; below, band of alternating pointed tongues. On body, bearded corpse on couch and mourners; those near the couch are women, those on the other side of the vase are men. White (vanished) was used for women's faces, arms, and feet; also for stars and palmettes on leg of couch and for parts of garments. Purple: fillet worn by corpse, spots, bands, and other parts of garments. Below main scene, lions and boars; below them, rays; purple band above foot. Black rosettes on handles; edges of handles are purple.

One woman leans forward and her profile is just above the head of the corpse. These two faces are well and carefully drawn, as are the animals, but the drapery and the figures on the reverse are rough and perfunctory. The head of the corpse is much like two bearded heads on the Athens loutrophoros (no. 688; *CVA.* III H, pl. 9, 3), which Miss Haspels assigns to the Sappho Painter (*Attic Black-Figured Lekythoi*,

FIG. 2A

FIG. 2B

FIG. 2C

LOUTROPHOROS AMPHORA

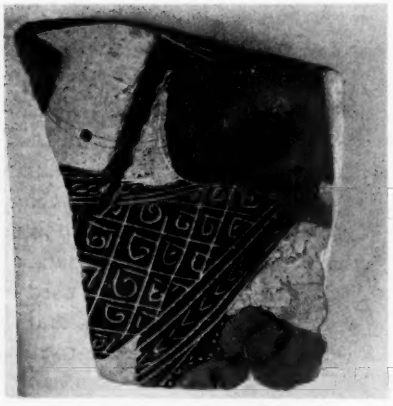

FIG. 3. — ATHENA

FIG. 4. — FRAGMENT OF PANATHENAIC AMPHORA

pp. 115 and 229); but that vase on the whole is superior to ours, and the other works assigned to that painter show no great similarity. The foot of our vase is unusual in form; the Cleveland loutrophoros (*Bull. Cleve. Mus.* 1927, p. 101) has a similar one, but no resemblance otherwise. Zschietzschmann (*AM.* 1928, p. 21) says that ornament on handle and mouth of loutrophoroi is white before 450, but our vase is an exception to this rule. The animal band is markedly unlike most such bands on loutrophoroi and appears to belong to the later period when horsemen were more usual or the band was omitted altogether. Perhaps 480–470.

Warren-Tarbell, 28. "Bought in Athens, from Dipylon." On black-figure loutrophoroi see Zschietzschmann, article cited; Cook, *Zeus*, iii, 373 ff.; *AA.* 1935, pp. 447 ff.; *Hesperia*, 1938, pp. 172 and 397.

3. Athena from Panathenaic amphora(?) (fig. 3). Longest side 0.053. Shoulder, neck, part of forearm; edge of helmet at back of neck, snakes of aegis; two-strand necklace with jewel between strands in front. The inside is varnished, which is unusual in Panathenaic amphoras; and an Athena of this type could occur on vases of other kinds (cf. Pfuhl, *MuZ.* iii, fig. 277); but several of the Acropolis fragments, thought by Graef to belong to Panathenaic vases, are from about the same level on the vase and are varnished on the inside (Graef, nos. 913, 970, 983, 984). However, Beazley thinks, because of this feature, that the piece does not belong to a Panathenaic amphora. The style is good and not remote from Exekias; cf. Technau, *Exekias*, pls. 4 and 10 for the hair, pl. 12 for the decoration of the garment. Usually, however, the ornament within the squares is more rectilinear in Exekias' own work, and this is probably not painted by him. More closely similar is some of the Swinger's drapery (*CVA.* Louvre, III H e, pl. 31, 4; *BSA.* 32, 1931–32, p. 15, no. 47). The rendering of the snakes is singular; each one forms a circle, within which two radii meet at an angle; for parallels, not very close, cf. vases in Würzburg (Langlotz, no. 173, pl. 32) and the Louvre (*CVA.* III H g, pl. 1, 1). One of the Acropolis fragments shows a head of Athena that is similar in type and period, though not particularly in style (Graef, no. 926, pl. 56).

Probably from the Acropolis; there is a paper label on the back with letters ακρ.

About 540–530.

4. Sprinters from Panathenaic amphora (fig. 4). Greatest length 0.10. Inside unpainted. Purple: hair of head, ring around nipple. Cf. for composition *CVA.* Copenhagen, pl. 104; Brussels, III H e, pl. 13, 4. Assigned by Beazley to Lydos (letter and forthcoming article).

Paper label as before.

Late sixth century.

5. Fragment of Panathenaic amphora (fig. 5). Ca. 0.05 square. No varnish inside. Inscription: ΤΩΝΑ[θήνηθεν ἄθλων]. Inscribed kionedon, hence well along in the fourth century. In the capital of the column there evidently was nothing below the abacus, which slants down at the corner and is bounded by an incision. Brauchitsch (p. 106) notes columns of this sort in his amphoras numbered 84, 93, 99, 100, 106, and 107, dated respectively 367/6, 340/39 or 313/12, 333/2, 332/1, 323/2 and 321/20. In no. 84 the inscription is quite unlike that of our sherd; the others may give an idea as to the date of the fragment, but in none known to me is the lettering closely

FIGS. 5, 6.—FRAGMENTS OF PANATHENAIC AMPHORAS

FIG. 7A.—MINIATURE PANATHENAIC AMPHORA. OBVERSE

FIG. 8.—HANDLE OF NIKOSTHENIC AMPHORA

FIG. 7B.—MINIATURE PANATHENAIC AMPHORA. REVERSE

similar. On Panathenaic amphoras of the fourth century: Schmidt, *Archaistische Kunst in Griechenland und Rom; RM.* 47, 1932, 63 ff. (Speier); *Ant. Class.* v, 1936, 96 ff. (Smets).

Label: ἀκρόπολις.

6. Fragment of Panathenaic amphora (fig. 6). Ht. 0.07. No varnish inside. Inscribed kionedon: ʾΑρισ]ΤΟΔΗ[μος, so dated 352/1.

Class. Rev. xiv, 1900, pp. 474 f.; Brauchitsch no. 89; *Ant. Class.* v, 1936, p. 98, no. 111. On back in pencil: R267.

7. Miniature Panathenaic amphora (fig. 7). Ht. 0.076. Mouth and foot broken. Black band on lip, inside and out; top unpainted. Neck black between handles, with white palmette on the black on each side. On shoulder: fine black lines with broad white lines between them. Broad black band down from each handle. A: Athena to left; white dots and stripe on garment and device on shield; white directly on clay for face, feet, forearm, and rim of shield (two lines). B: runner; one incision marking off left leg.

On this class of vases see Pfuhl, *MuZ.* i, p. 333; *AA.* 1935, 447. The obverse of our vase is almost exactly like that of the Munich example (Pfuhl iii, figs. 302–3) and those of the two in the Gallatin collection (*CVA.* U.S.A. fasc. 8, pl. 40, nos. 2–3); the four might be the latest of the class, in which incision diminishes, white increases, and the drawing grows sloppier, with time. The others known to me might have been made in the following order: Louvre MNB 2862 (*CVA.* III H g, pl. 5, 2 and 4); British Museum (*CVA.* III H f, pl. 5, 2); Leningrad (*CR.* 1876, pl. I, 4–5); Cassel (*AA.* 1898, 192); Louvre CA 71 (*CVA.* III H g, pl. 5, 6–7); Metropolitan Museum (Richter-Milne, fig. 27); Athens, Agora (*Hesperia* i, 1932, 86 f.); Copenhagen 6337 (*CVA.* III H, pl. 105, 2); Louvre MNB 3224 (*CVA.* III H g, pl. 6, 10 and 12); Leningrad (*CR.* 1876, pl. I, 6–7); Louvre MNB 3225 (*CVA.* III H g, pl. 6, 8–9).

Warren-Tarbell 24. "Bought in Athens."

First half of fourth century.

8. Handle of Nikosthenic amphora (fig. 8). Width, 0.045; curved length, 0.08. Six holes, doubtless for ancient repairs. Silen with purple beard and hair. Silens appear on the handles of several amphoras signed by Nikosthenes; at least one (Hoppin, *Black-Figured Vases*, p. 191) is by the same painter.

9. Pelike (fig. 9). Ht. 0.345. Broken, but virtually complete: touched up with modern paint. A: on each side a dancing Silen with three-pointed tail; in the center, man playing the double flute; the flute-case hangs from his arm; he wears a hat with long brim in front, high boots, and a garment at the waist; apparently there is also a sword at the waist. B: two bearded men with long staffs; in the center, a sphinx on a pillar. Many incisions take away considerable bits of varnish. The face and neck of the sphinx were white. No purple in the pictures, but a line on the neck and two lines around the vase below the pictures were probably purple. Incised on the bottom, in the center: ⋕ and on the rim: ξταλικ. A pelike in Oxford (*CVA.* III H, pl. 8, nos. 7–8) is certainly by the same painter; doubtless also the other pieces there mentioned. An amphora in the Metropolitan Museum (26.60.29), though superior, may also be his work. Miss Haspels (*Attic Black-Figured Lekythoi*, p. 161) found that this painter was related to the Athena Painter; Beazley now identifies him with the

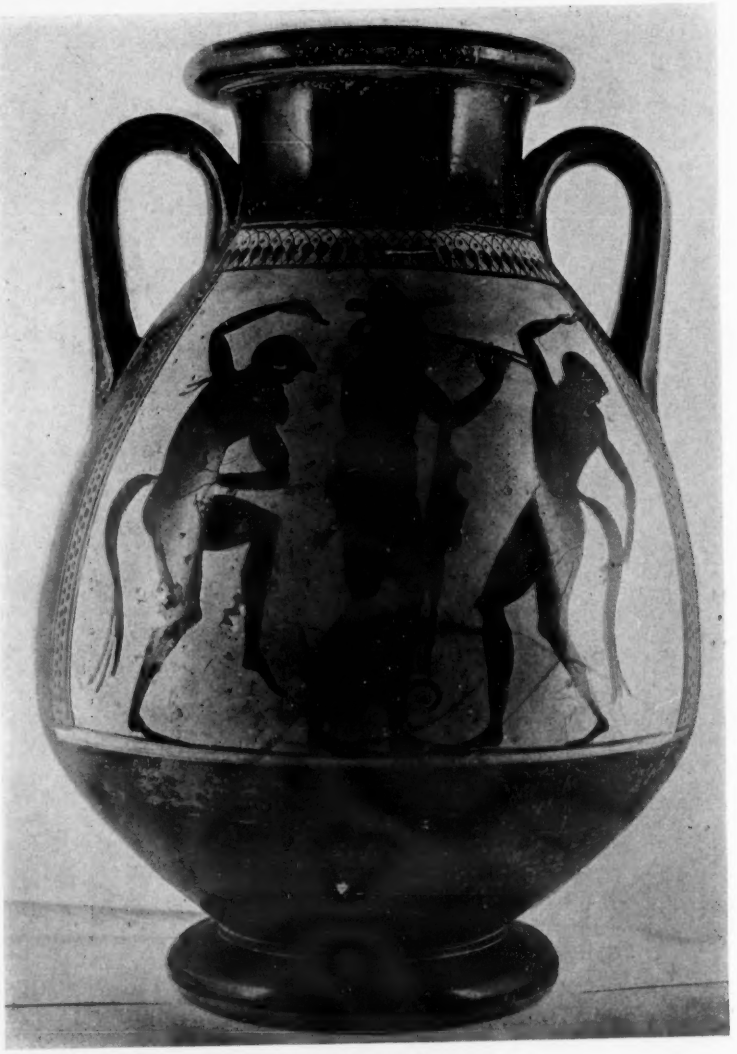

FIG. 9A. — PELIKE. OBVERSE

FIG. 9B. — PELIKE. REVERSE

Eucharides Painter. The graffito on the rim is a combination of abbreviations from "stamnos" and "lekythos;" for such combinations see Hackl, in *Münchener archäologische Studien*, pp. 96 f. This combination does not occur in Hackl or elsewhere to my knowledge, nor is the separate mark closely paralleled. Black-figure pelikes are not very numerous; several are mentioned by Pfuhl, *MuZ.* i, p. 301, and by Mingazzini, *Vasi della Collezione Castellani*, p. 275, no. 518; also: Albizzati, *Vasi Antichi Dipinti del Vaticano*, no. 413, pl. 61; *CVA.* Athens, III H e, pl. 5, no. 4; *CVA.* Bologna, pl. 25; *AA.* 1935, p. 450, no. 24 (Bonn); Boston (Robinson, no. 328); Chicago Art Institute, 89.12; *Hesperia* 1939, p. 230.

Warren-Tarbell, 2. Early fifth century.

10. Fragments of large lekythos (fig. 10). Ht. of piece as shown, 0.24; diam. ca. 0.17. Background now gray. The composition is bounded by an Ionic column at the left and presumably by another (part of shaft preserved) at the right. Herakles binding the Cretan bull. His lion-skin and quiver, mostly broken away, hung in the background. At right, a seated woman with a scepter; the white of her face is lost. Next, a bearded man with a staff, probably Hermes. Left of the central group, Athena with spear and aegis; Herakles' club leans against her body; then Dionysos with wreath and vine. Purple: leaves of Dionysos' wreath, Herakles' fillet, Hermes' fillet or part of hat.

For subject and type see chiefly Roscher, *Lexikon* i, 2, 2201 (Furtwängler); also *RE.*, Supplement iii, 1051; Robert, *Die griechische Heldensage*, 1921, p. 456; Albizzati, *Vasi Antichi Dipinti del Vaticano*, no. 389, pl. 55; *AA.* 1930, 25–28; *CVA.* Louvre, III H e, pl. 47; scattered examples in Haspels, *Attic Black-Figured Lekythoi.* Hermes and Athena are likely to be present in this adventure, Dionysos is not. In Berlin 1898 there is a woman, interpreted by Furtwängler as a nymph of the place; but our sceptered lady should be some loftier goddess, probably Hera; compare Haspels, pl. 15, 4.

Vienna 753 (Haspels, *ABL.* pp. 55 and 61, pl. 16, 1) is closely similar in form; the drawing is somewhat similar also, but more minute and less strong. Miss Haspels mentions three pieces related in style to the Vienna lekythos, but more vigorous in drawing; however, they do not seem closer to our piece. An amphora in the Vatican (Albizzati, no. 379, pl. 60) and two hydrias representing Herakles and the Triton (Boston, 01.8058; Chicago Art Institute, 89.15) have strong similarities in drawing.

510–500 B.C.

11. Squat lekythos (fig. 11). Ht. 0.08. Bottom loose, a piece lost below handle, two pieces lost from surface in figure scene; otherwise complete, though broken. A draped figure, presumably female, stands at the left; the black at the top, which must include the neck though much of it might be hair, apparently never had any white over it; faint incisions, possibly an eyebrow and eye, extend from the black to the unpainted surface in front, where there are possible traces of white. Next a small male figure sits on an okladias; then a man advances to right, wearing a short garment or skin; a small, half-squatting male figure is perhaps playing with some small object before him, slightly above the ground. At the right a Silen sits on an okladias, looking back to left and holding in his hands an ax and a club, as though trimming the latter. Purple: hair, beard, tail, parts of garments; the garment of the Silen is white with purple

FIG. 9A. — PELIKE. OBVERSE

FIG. 10A

FIG. 10B

FRAGMENTS OF LARGE LEKYTHOS

FIG. 10C.—FRAGMENTS OF LARGE LEKYTHOS

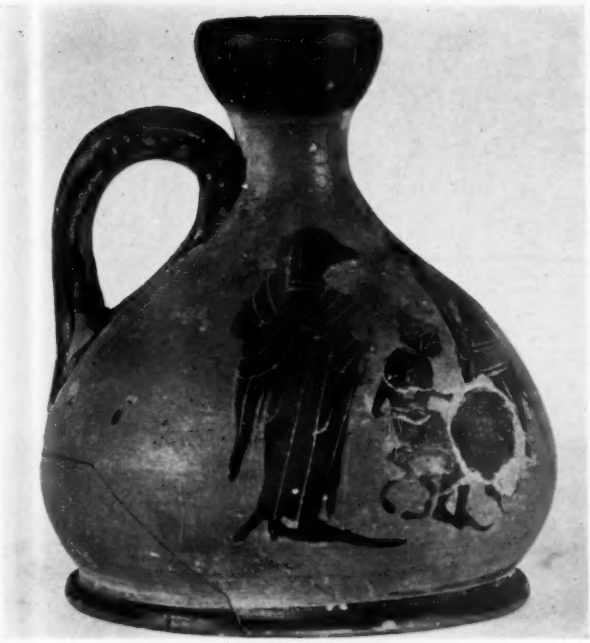

FIG. 11A

FIG. 11B

SQUAT LEKYTHOS

FIG. 12A

FIG. 12B

LEKYTHOS

FIG. 13

FIG. 14A

FIG. 14B

MINIATURE LEKYTHOS

spots. In view of the variety of activities in which Silens appear, it is not incredible that one of them should be preparing a club, presumably for Herakles; but the meaning of the rest of the scene, if there is any, is difficult to determine. No close parallels for the shape have been observed (cf. Haspels, p. 3; Beazley, *BSA*. xxix, 1927–28, pp. 187 ff.), but I should have thought it early, especially in view of the form of the mouth; the vase looks somewhat like the upper half of a lekythos like Haspels, pl. 9, 1. However, the woman's garment can hardly belong to the sixth century.

Warren-Tarbell 23; "bought from a Greek in Paris."

12. Lekythos (fig. 12). Ht. 0.245. Handle and neck from another lekythos; otherwise unbroken. Varnish good on neck, on body poor and brownish. The vase to which the neck belonged could be red-figure, probably from the vicinity of the Bowdoin Painter, or black-figure, from the Athena Painter's group (Haspels, pp. 148, 157–60; the two painters perhaps the same); the upper horizontal line is unusual; date about 480. On shoulder of the lekythos: bars. Above figures: horizontal and short vertical lines, not continuing around the vase. One figure seated on an okladias, another on a stool, a standing figure before each. All figures wear Ionic himatia and doubtless are feminine; arms and faces are dull, the white having disappeared. In the pair at the right, the seated lady is probably holding a huge mirror; the standing figure's right arm crosses her body and with her left hand she holds her skirt. In the other pair the action is probably the same, though even less clear. The black spots in the upper part of the field are probably meaningless. Below the picture, three "wet-incised" lines (Haspels p. 155). The pattern above the figures is a specialty of the Emporion Painter (Haspels p. 166; cf. pl. 48, nos. 3–5), but probably he draws neither pattern nor figures as badly as they are drawn here. The closest analogy is a lekythos in Copenhagen (*CVA*. pl. 111, no. 19; cf. also no. 7). A kylix may also be compared; Miss Haspels places it near the Haimon Painter, who is near the Emporion Painter (*JdI*. 1934, p. 1; Haspels p. 136). About 470–460.

Inventory 136; "from Haskell Oriental Museum, October, 1916."

13. Lekythos (fig. 13). Foot lost. Ht. 0.146. On shoulder: short and long bars. On body: three palmettes, five vertical strokes; at bottom, succession of circles with dots in centers, replacing the spirals that accompany well-drawn palmettes. White: arcs enclosing the palmettes and dots between two incised lines enclosing the heart of each palmette. On palmette lekythoi see Haspels, pp. 185 f. This example belongs to the group assigned by her to the Beldam workshop (470–450 B.C.). Compare also: *CVA*. Lecce, III H e, pl. 3, no. 3; *CVA*. Poland II (Cracow), pl. 94, no. 14.

14. Miniature lekythos (fig. 14). Ht. 0.066. Lip, handle, part of echinus foot lost. On shoulder: lotus chain upside down. On body: draped figure in biga; in front, male with staff or lance and winged shoes, probably Hermes; behind chariot, fully draped figure with spear, probably Athena. Purple for garments, mane, and tails. Poor drawing. According to Miss Haspels (p. 44), the lotus chain upside down is regularly found on the shoulder of less important lekythoi of the Leagros period and after. The shape should not be later than the Leagros period; probably 510–500 B.C.

15. Eye kylix (fig. 15). Diam. 0.221, ht. 0.087. Put together, virtually complete; slight repainting. Inside: bearded gorgoneion; traces of teeth and tusks, doubtless

FIG. 15A.—EYE KYLIX. DIONYSOS AND SATYRS

FIG. 15B.—EYE KYLIX. GORGONEION

FIG. 16.—STAND (?)

FIG. 17.—FRAGMENT. SATYR

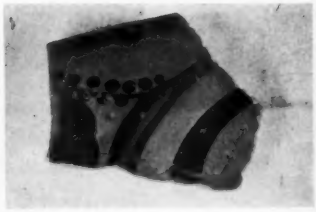

FIG. 18.—FRAGMENT

originally white; central part of tongue perhaps originally red; incised circles in eyes of gorgoneion. Outside: two eyes on each side; purple center, black and white bands. Below each handle: flying bird in silhouette. Between each pair of eyes: Dionysos, wreathed, on okladias, with horn; about him, vines. Flanking each pair of eyes: two ithyphallic Silens. Purple: hair, beard, folds of Dionysos' garment, leaves of his wreath. White: three large dots on each okladias, smaller dots on garment. The style is late, meager, and poor, but fairly careful.

Kylikes of similar style are numerous. Most definitely assignable to the same painter, especially by the drawing of the gorgoneion, are a kylix in Hamburg (*AA.* 1928, col. 307, figs. 30–31) and one in Lancut (*CVA.* Poland III, pl. 129, no. 2). The latter has no decoration except the gorgoneion; the same is true of a kylix in Copenhagen (*CVA.* pl. 113, no. 2) and, at present, of two found on the Acropolis (Graef, pl. 89, nos. 1879 and 1882); all three could be the work of the same man. Others are related rather by the exterior: Toronto, nos. 290–292 (Robinson-Harcum-Iliffe, pp. 104–106, with reference to two others by the same hand); Cambridge (*CVA.* pl. 17, nos. 6–7; pl. 20, nos. 2 and 4); the British Museum (*CVA.* pl. 22, nos. 1, 3, 6, 8); the Bibliothèque Nationale (*CVA.* pl. 55, nos. 1–4, 5, 7, 10); Louvre F 120 (Pottier, *Album*, pl. 72); Washington, National Museum, no. 1361.

Warren-Tarbell 8. "From Vulci (Torlonia Collection). Gsell, *Fouilles de Vulci*, p. 182, tomb LXXIX 7." On gorgoneia: Besig, *Gorgo und Gorgoneion in der archaischen griechischen Kunst*, 1937; the gorgoneia on kylikes have been little examined.

Probably 510–500 B.C.

16. Stand? (fig. 16). Diam. of disc, 0.065; thickness of disc, 0.011; diam. of stem, of which little remains, 0.025. The profile of the disc is an inverted echinus. The stem is hollow and the inside is black, but unpainted at the very end. In reserved area on the disc, bounded by black projecting ring: nude boy with hoop. Compare Richter-Milne, *Shapes and Names of Athenian Vases*, p. 31, fig. 190; Graef-Langlotz i, nos. 2478, 2697–2702. It is very improbable that such articles, decorated on top, were stands for vessels. They should have been used to cover some small objects, possibly in some kind of game.

Paper label: Ἐρετρίας.

17. Fragment: Silen (fig. 17). Greatest length, 0.075. No varnish inside. Waist, rump, and tail; tail purple. Probably 550–530.

Warren-Tarbell, 87.

18. Fragment of kylix rim (fig. 18). Length 0.02. Vines.

19. Fragment (fig. 19). Greatest dimension 0.08. Inside black. Owl, ornament, foot, probably toe of another foot. Late sixth century.

20. Fragment (fig. 20). Longest side 0.051. No varnish inside. Male head; fillet purple, white for garment on shoulder. Early fifth century.

21. Plaque with prothesis scene (fig. 21). Ht., original, 0.10; width 0.058; thickness 0.01. Three edges original; edges and back unpainted; the piece is slightly curved, the back convex. Upper part of female corpse, wearing wreath (incised); draped mourner with hands raised to head. A hand touches the head of the corpse, and an elbow is seen above it. The mourner wears a mantle over back and shoulders; an undergarment with purple spots, coming down below the knees; and a white garment

visible below that. Below the couch, a footstool, largely lost; apparently, it was somewhat like that of the archaic seated goddess in Berlin; this type is rare in black-figure (Richter, *Ancient Furniture*, pp. 72 f.). Purple for spots and stripes on the

FIG. 19.—FRAGMENT. OWL

FIG. 21.—FRAGMENT OF PLAQUE. PROTHESIS SCENE

garments and on the couch-leg; all faces and arms are dull black, the white having disappeared.

Plaques with prothesis scenes are listed by Zschietzschmann, *AM.* 1928, pp. 39 f. He finds that there is none in red-figure and none in black-figure later than 480. This specimen is among the smaller and poorer, and seems also to be among the latest. The drapery is not very unlike that of the loutrophoros, no. 2.

22. Plaque (fig. 22). Ht. 0.05, width 0.075, width at top 0.047. Upper edge original and black, back unpainted. On the back there are two penciled markings: one reads "R 200," the other is illegible. Warrior with Attic helmet, leather corslet, and spear; against his right shoulder leans another spear or staff. Before him is another helmet, with high crest; its wearer faced left and his head was low in the picture; presumably he has been struck down. Above the crest of this helmet is the end of a spear. The first helmet is purple, likewise parts of both crests; this doubtless corresponds to actual differences in color in the crests of helmets. Inscription at top, as

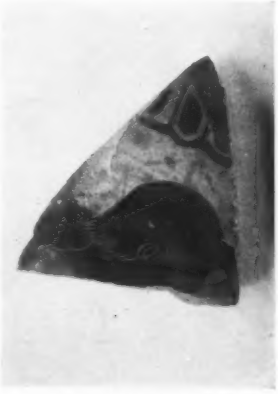

FIG. 20.—FRAGMENT

seen in the photograph. The sign after omicron may have been intended as sigma, but the upper dot is separate from the rest and an examination of the surface shows that nothing has been lost; on the other hand, it differs perceptibly from the first punctuation. After this sign there is a part of a letter, gamma or, better, mu or nu. This mark is very faint, apparently as a result of erasure; and under a glass I think I see traces of abrasion, though they are certainly very slight. Reading the second word as καλός we have to all appearances the end of a dedication and the first word of a kalos formula. This is an unusual combination; the dative Ἀθενᾶι is itself unusual, but occurs (Graef-Langlotz ii, no. 1353; IG. i², 699). It may be noted that there is only one other case of a kalos-name on a plaque (Robinson-Fluck, *Greek Love-Names*, p. 143); that in that case the name was erased; and further that the name was Megakles, of which the erased letter on our plaque could very well be the first letter. It is also possible, though unlikely, that the inscription was of considerable length, with the first remaining word to be read Ἀθῆναι. Graef-Langlotz i, no. 921, pl. 59, is fairly closely related in style, though superior. Graef placed it well back in the sixth century, but for our fragment a fairly late date is suggested by the leather cuirass and by its rendering, not very unlike that in the arming scene signed by Douris. The lettering of the inscription, with the dotted theta and the alpha and nu in forms later than in the Acropolis vase, tends to support a relatively late date. Perhaps 510–500.

FIG. 22.—FRAGMENT. WARRIORS

On the assumption that the inscription was short, it is probable that the warrior preserved was the last at the right; then there would be a combat scene and another spectator at the left.

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HAGHIA SOPHIA, ISTANBUL: PRELIMINARY REPORT OF A RECENT EXAMINATION OF THE STRUCTURE

While viewing mosaics being uncovered in Haghia Sophia by the Byzantine Institute under the direction of Thomas Whittemore in 1936, William Emerson, Dean Emeritus of the School of Architecture at the Massachusetts Institute of Technology, observed that the secularization of the mosque had created conditions favorable for making a comprehensive architectural study. Through Mr. Whittemore, he proposed to the Turkish Ministry of Public Instruction to support and supervise the preparation of detailed records with a view to identification of the original form of the building and the alterations effected by later restorations. His proposal met immediate approval and arrangements were made whereby he was authorized to undertake, within permissions granted the Byzantine Institute in 1931, an independent architectural investigation, which commenced in 1937 and was closed by the threat of war in 1941.[1]

FROM its dedication by the emperor Justinian in A.D. 537 until the capture of Constantinople by the Turks in 1453, Haghia Sophia was the center of the Greek Orthodox religion. Appropriated to Moslem ritual by the Turks, it remained the seat of the Kaliph of Islam until 1924. By decree of Mustafa Kamâl Atatürk, founder of the Turkish Republic, it became in 1934 a State Museum. Lack of detailed records of the structure of this building—unique in its historical and architectural interest, characterized [2] as one of the four pinnacles of architecture and the supreme monument of the Christian cycle—creates a conspicuous and paradoxical gap in our knowledge of ancient monuments.

The events of far-reaching consequences which have occurred in mediaeval Constantinople and modern Istanbul, many of them within the walls of Haghia Sophia itself, have in each epoch focussed upon it the attention of contemporary historians. Their accounts provide a chronology of its erection and of subsequent failures and repairs,[3] and a record of its impressiveness in each era. As a monument erected early

[1] It is a pleasure to acknowledge the assistance received at the outset of the work from the late Halil Ethem, former Director of the National Museum, and from Thomas Whittemore, Director of the Byzantine Institute; and to thank Bay Aziz Oğan, present Director of the National Museum, for continuing the cooperation of his predecessor. Special thanks are due to Bay Sami Boyar, Director of Aya Sofya Müzesi, for his active interest in the success of the investigation; to Dean Lucius Scipio of the Engineering Department of Robert College for placing surveying instruments at our disposal; to Frederick P. Latimer, Jr., American Consul in Istanbul, and Dr. Lorrin Shepard of the American Hospital; to Bay Tahsin Güçcü; and to the custodians of the museum, among whom Suleyman Toker was an invaluable helper.

We are indebted to the Massachusetts Institute of Technology for facilities used during the preparation of this report. The following members of the faculty have been of particular assistance: Professor Frederick K. Morris has collected geological data and has suggested new lines of inquiry; Professors Walter C. Voss, Howard R. Staley and Frederick K. Morris have analyzed specimens of brick and mortar; Professor E. N. Gelotte has estimated stresses; Professor E. F. Langley has aided with translations; Professor F. G. Fassett, Jr. has given editorial assistance; and the entire staff of the School of Architecture has been helpful in various ways.

Dr. Karl Terzaghi of Harvard University, authority on soil mechanics, has been generous in interpreting data regarding the foundations.

Boris Ermoloff and the staff of the Library of the Byzantine Institute in Paris have aided with bibliographical matters. George Cotzias, M.D., has translated Greek sources. Seth T. Gano has advised constantly since the inception of the work.

[2] W. R. Lethaby and H. Swainson, *The Church of Sancta Sophia, Constantinople*, London, 1894, p. iii.

[3] The sequence of events mentioned in the following pages is generally accepted, except for discrepancies of a year or two which cannot be discussed here and which do not affect this structural study.

in the sixth century and never approximated in scale or magnificence during the remaining nine hundred years of the Byzantine epoch, it has exerted wide influence over successive generations of builders. Finally, it stands today, after fourteen hundred years of constant use, in a remarkable state of preservation.

Erection of Haghia Sophia was determined upon by Justinian within six weeks of the burning of a basilica built on the site by Theodosius II in the fifth century. Under the architects Anthemius of Tralles and Isidorus of Miletus, the present structure (fig. 1) was completed in five years and ten months between 532 and 537 A.D.

The ground plan of Haghia Sophia measures 70 m. in width and 97 m. in length. The central area of its nave, crowned by a masonry dome with a span of more than 32 m., reaches a height of 56 m., equal to that of a fifteen-story building. The dome is carried on arches which spring from four piers arranged in a square plan. The eastern and western arches, transverse to the axis of the nave, open into semi-domes which maintain the rectangular feeling of the nave plan. The northern and southern arches, which have greater thickness and shorter span, are filled by tympana. Arches which are comparable in span to the two transverse arches project in front of the tympanum walls and appear to carry the dome. Transition from the square plan at the springing of the arches to the circle of the dome is effected by pendentives. Support for this superstructure is provided by the two semi-domes to the East and West and by buttresses to the North and South rising behind the four piers at right angles to the axis of the nave. The immense and open nave created by this ingenious disposition of supports and enhanced by rich marble paneling and mosaic decorations, is one of the most impressive spaces ever enclosed by man (fig. 2).

The effect we see today, however, is not that created by the original architects, for the dome of Anthemius and Isidorus partially collapsed in 558 A.D., following an earthquake in 557. Justinian confided the restoration to Isidorus the Younger, nephew of the first Isidorus, who, upon consideration of the causes of the disaster, decided to dismantle the remainder of the dome and increase its height so as to bring the thrusts more nearly vertically upon the piers. This dome reconstructed in an altered form, called hereafter the second dome, was completed in 563. Though frequently shaken by earthquakes since the sixth century, it has been injured on but two occasions: the western arch and part of the dome collapsed in 986 and were restored by 994 under direction of an Armenian architect, Trdat. The eastern arch and a segment of the dome gave way in 1347 and were repaired by the architects Astras, Faciolatus, and Giovanni Peralta during operations lasting until 1354. These are the only recorded instances of major damage sustained by the dome.

In spite of the unusually complete documentation of Haghia Sophia and its present unimpaired state, attempts to determine the extent of the damage suffered on these occasions and to speculate upon the form of the original dome have proved indecisive for want of knowledge of the present condition of the structure.

During the growth of interest in antiquities in the eighteenth century, Haghia Sophia was withheld from close examination by Christians. Up to the middle of the nineteenth century reports preserved in mediaeval manuscripts were elaborated

FIG. 1—HAGHIA SOPHIA: EXTERIOR FROM THE SOUTHEAST

FIG. 2—THE SOUTHWEST EXEDRA FROM THE CORNICE OF THE DOME

only by descriptions of travelers who visited the building briefly and by naïve drawings, the best known of which were published in 1680 by a Frenchman, Grelot,[4] better fitted by courage to enter the building in disguise than by skill to record what he saw. In 1847 Sultan Abdul Mecid appointed two Italian-Swiss architects, the Fossati [5] brothers, to restore the mosque, thus enabling a German, Salzenberg,[6] to make the first architectural study. The fundamental information published by Salzenberg has since been extended by Choisy's [7] investigations of certain details of the structure, by re-examination of historical and architectural problems by Lethaby and Swainson,[8] by Prost's [9] and Gurlitt's [10] restoration drawings, and by Antoniades' [11] discussion of all phases of the building. Short articles by Swift [12] and Toy [13] have treated the problem of the buttresses and, since the present investigation was undertaken, Swift's [14] correlation of extant material, containing Conant's [15] observations on the dome, has appeared. These works, necessarily based upon incomplete data assembled with difficulty while the mosque housed daily services, present, for the most part, general descriptions and conventionalized drawings which do not record deformations, irregularities and changes of material which are tangible evidence of structural alteration. Hence the major structural problems of the building remain unsolved.

The material which follows is taken from extensive data collected during twenty-nine months of activity in the building between July, 1937, and May, 1941. Starting in a cul-de-sac in the southeast buttress, the investigation expanded in parts of these five years to touch the foundations, to include in exhaustive detail the four main piers, buttresses, and dome-base, and ultimately to reach the pinnacle of the dome. In May, 1941, six months short of the minimum time originally anticipated, the work was abruptly terminated. Despite this sudden conclusion, the investigation yielded information falling so little short of solution of the major problems that it is possible to present at this time a preliminary report of three phases indispensable to an understanding of the building: a brief discussion of foundation conditions, which determine its stability; a description of the characteristics of masonry employed in the sixth century walls, without which later alterations cannot be differentiated; and, essential to an explanation of all other problems of the dome, identification of what the present structure retains of the dome built by Isidorus the Younger in 563.

[4] G. J. Grelot, *Relation nouvelle d'un voyage de Constantinople*, Paris, 1680.

[5] G. Fossati, *Aya Sofia, Constantinople, As Recently Restored By Order of H. M., the Sultan Abdul Medjid*, London, 1852.

[6] W. Salzenberg, *Altchristliche Baudenkmäler von Constantinople*, Berlin, 1854.

[7] A. Choisy, *L'Art de Bâtir chez les Byzantins*, Paris, 1883.

[8] *Op. cit.*, note 2.

[9] H. Prost, "Ste. Sophie," *Publications de l'Institut de France sous la Direction de M. H. D'Espouy, Supplement*, 1911.

[10] C. Gurlitt, *Die Baukunst Konstantinopels* i and ii, Berlin, 1912.

[11] E. M. Antoniades, Ἔκφρασις τῆς Ἁγίος Σοφίας, Athens, 1907–09.

[12] E. H. Swift, "The Latins at Hagia Sophia," *AJA.* xxxii, 1935, p. 458.

[13] S. Toy, "The Church of St. Sophia, Constantinople," *The Builder*, London, Oct., 1922.

[14] E. H. Swift, *Hagia Sophia*, New York, 1940.

[15] K. J. Conant, "The First Dome of St. Sophia and its Rebuilding," *AJA.* xliii, 1939, p. 589.

CISTERNS AND FOUNDATION CONDITIONS.

The search for information about the foundations touched upon one of the most interesting legends attached to Haghia Sophia—the belief that cisterns commensurate with its scale are enclosed within the substructures.[16] As a number of Istanbul's subterranean reservoirs are connected with former Byzantine churches, it was natural to assume that cisterns would also be found here, but because their existence has never been verified, the legend rests purely upon literary grounds.

Examination of two wells within the nave, descent of one outside the north wall, and exploration of more than 300 m. of passages underlying the western part of the nave and nartheces (fig. 3) make clear two facts: first, no large cisterns were symmetrically incorporated in the original foundations; and, second, the piers of the dome are built upon natural rock, the compression of which under the weight of the structure was largely responsible for the failure of the first dome.

The literary basis for the legend will not be repeated here except to point out certain conclusions which have not been drawn before. The most striking fact is that cisterns are not mentioned in the first four descriptions of Haghia Sophia,[17] written in the sixth century by professional chroniclers within the lifetime of men who might have witnessed the construction of the building. This negative testimony is of great importance, because cisterns of the size later rumored would have been one of the building's most noteworthy features. The legend thus did not begin with the erection of the church, but appeared in following centuries. No references to cisterns at Haghia Sophia have been cited from surviving Byzantine literature, the affirmations coming solely from travelers who were strangers to the city. During Turkish times when the building was shrouded in oriental mystery, the number and fancifulness of the tales increased greatly, yet only Dr. Covel of Oxford,[18] who visited the building on September 26, 1674, gives information obtained by personal inspection. His cryptic description and plan are so at variance with the details of known cisterns that the object of his remarks remains unidentified. Although architectural investigations of the last hundred years have failed to produce conclusive evidence of the existence of cisterns, the legends have gained such credence that recent authors leave the question open. The reason for the vagueness of the written evidence is explained by examination of the possible entrances to cisterns.

The longitudinal axis of Haghia Sophia points approximately 33 degrees south of East, but to simplify the description of various parts of the building the walls throughout this article will be referred to as north, south, east, etc.

The opening in the nave floor (no. 1 in fig. 3), 10.50 m. south of the northwest pier of the dome,[19] long pointed out as an entrance to the cistern, is a well cut from

[16] For general discussion see S. Casson, "The Underground Cisterns of Constantinople," *Arch. Review* lxv, London, Oct., 1929, p. 167; for more specific information, J. Strzygowski and P. Forchheimer, *Die Byzantinischen Wasserbehälter von Konstantinopel*, Vienna, 1893; K. Wulzinger, *Byzantinische Baudenkmäler zu Konstantinopel, zum Problem der Zisternen und Substruktionen*, Hanover, 1925, chap. iv.

[17] The text and dates of these descriptions by Procopius, Paul the Silentiary, Agathias, and Evagrius are given by Lethaby, pp. 30 ff.

[18] Dr. Covel's Journal, British Museum Manuscript No. 22912, pp. 156 ff.

[19] The factual information which follows could not have been obtained without the assistance of Bay Sami Boyar, the Director of the Museum of Aya Sofya, who granted permission to explore below

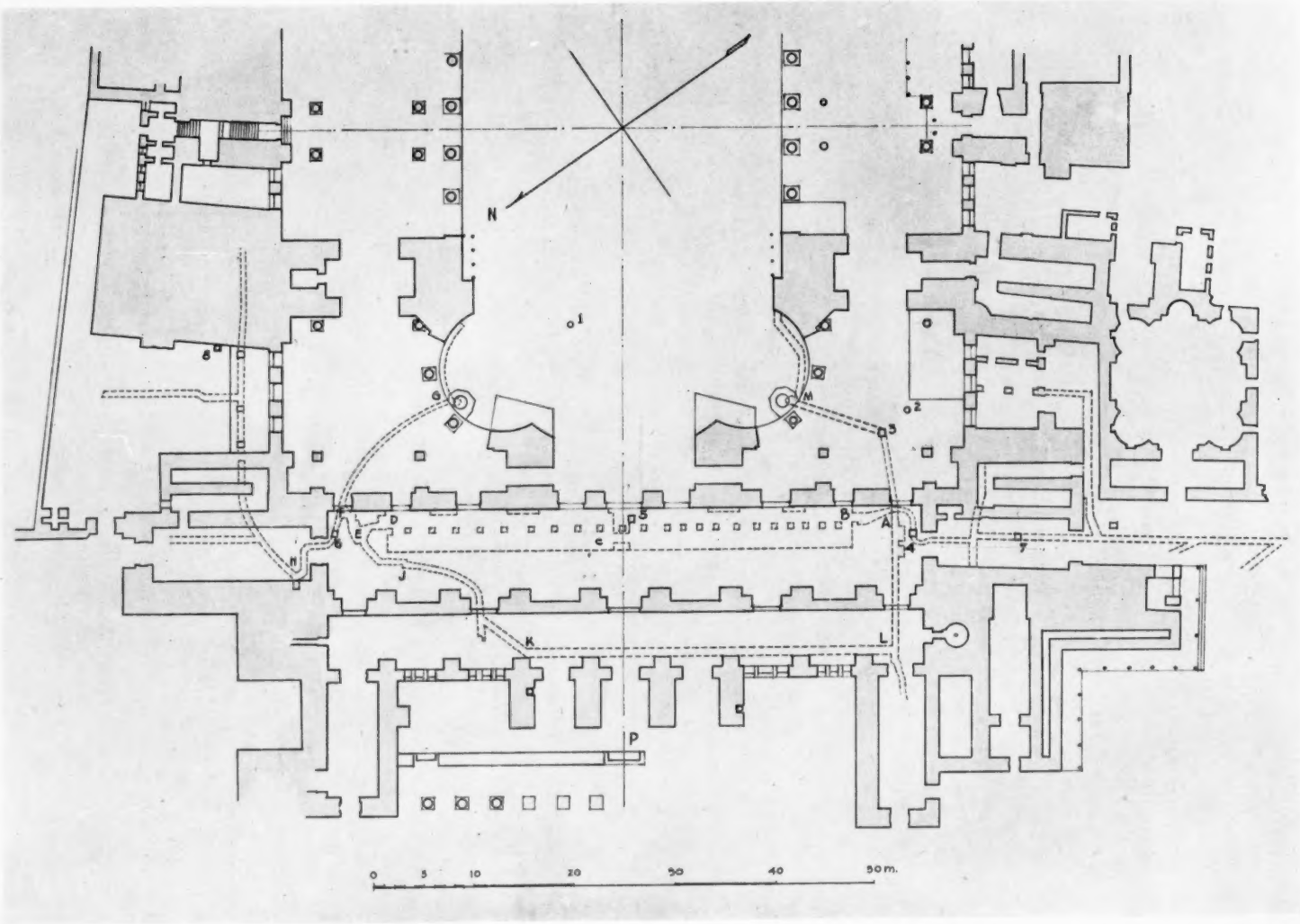

FIG. 3—PLAN (AFTER PROST) SHOWING WELLS AND PASSAGES BELOW THE FLOOR

natural rock (fig. 4). Its mouth, closed with an iron cover, is a circular hole 0.44 m. in diameter, pierced through a square block of marble which is fitted into the matched floor slabs on three sides with such precision that the joints are almost imperceptible. On the fourth side toward the West, the block is bordered by a piece of unpolished marble lying in the place of a band of verde antique that formerly extended between the two western exedrae.

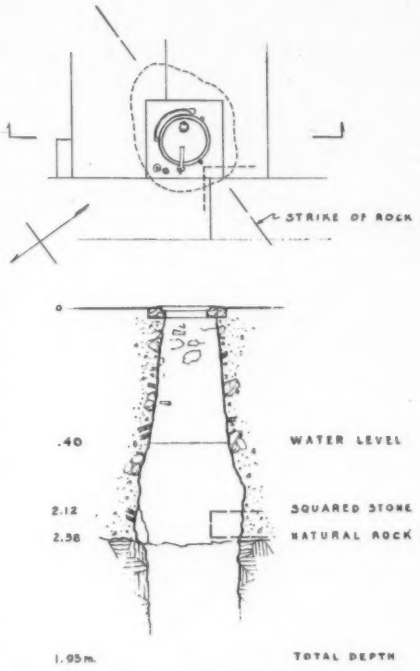

FIG. 4—PLAN AND SECTION OF WELL NO. 1 SOUTH OF NORTHWEST PIER OF THE DOME

Water stood 1.40 m. below the floor level in a shaft 11.98 m. deep on April 21, 1940.[20] The diameter of the shaft below the well-head measures 0.54 m. and increases to an irregular shape at 2.38 m. below the floor. Between the floor level and this point, the walls are composed of fragments of bricks and marble enclosed in irregular chunks of mortar. Below 2.38 m., however, the shaft, with a uniform diameter of 1.0 m., is cut from natural rock, the strike of which points almost due East, the dip sloping gently toward the South. As no connecting channels of any kind are visible, it is obvious that the opening which has been considered an entrance to the cistern, is in reality a well cut from solid rock which at this point in the nave stands 2.38 m. below the present floor.

The square corner of a large stone 0.26 m. thick lying on the rock, with its edges parallel to the axes of the nave, intrudes into the shaft at 2.12 m. from the floor. As the sill of an entrance to the previous basilica (P in fig. 3), excavated by Schneider [21] in the former atrium, is only 0.37 m. below the surface of the stone, and the axes of the two buildings virtually coincide, this stone appears to belong to the floor of the earlier church. Part of the basilica must therefore have been built directly upon the rock.

The date of the excavation of the well is uncertain, because it may have been dug before the occupation of the site by sacred buildings and have been incorporated

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the floor of the building and came personally to facilitate the examination at odd times which would not interfere with regular visiting hours of the museum.

[20] Antoniades ii, p. 39. In October, 1904, Antoniades found the surface of the water 1.80 m. below the floor and the total depth of the well to be 11.98 m. The 0.40 m. difference between the water levels is explained by the fact that Antoniades' measurements were taken in October following the summer drought, whereas we measured the well in April after ground water had been replenished by winter rains. Professor Morris points out that the water might have stood at considerably higher or lower levels in the intervening period, on account of cyclical as well as seasonal changes.

[21] A. M. Schneider, "Die vorjustinianische Sophienkirche," *BZ.* xxxvi, 1936, pp. 77 ff.

successively in each. Fragmentary materials of the upper walls of the shaft show no stratification. They are probably the ruins of the earlier basilica, or other fill, leveled off to receive the present floor. As the well lies directly below a part of the western arch which fell in the tenth century, it could not have escaped injury at that time. The well-head and the uninjured floor slabs surrounding it must consequently date from Trdat's restoration completed in 994 A.D.

Exploration of passages through the fill under the western half of the building likewise failed to produce evidence of cisterns. The entrances to these tunnels, which were recently laid bare by the removal of prayer rugs, consist of the following: a rectangular stone (no. 3 in the plan) near the well in the west bay of the south aisle; a series of three rectangular stones (nos. 4, 5, and 6) with lifting rings, in patches in the large early floor slabs of the narthex, one near the middle and one at either end; and a similar stone (no. 7) in the south vestibule. At the south end of the narthex no. 4 opens into a passage 0.89 m. wide and 1.70 m. deep which turns west under the door sill and passes, with intersections as shown, beyond the wall of the building almost to the gate to the courtyard. It turns north along the foundation of the east wall of the narthex, passes under another channel at A and enters at B a space 4.0 m. wide (fig. 5) with a double bay of vaults supported on twenty-three brick piers. The floor, walls and vaults are covered with a thin coat of mortar in which is visible a former water-line, 0.40 m. above the floor of the tunnel.

FIG. 5—VAULTED PASSAGE UNDER NARTHEX

Upon leaving the north end of the vaulted space at D, the passage reaches an intersection E, from which one tunnel curves out to the urn in the northwest exedra at G and continues on to end by the northwest pier; another curves back from F, passing the sill of the door to the north vestibule and turns back at H along the north wall. A third goes diagonally into the outer narthex and follows its west wall to the southernmost bay before turning at L and re-entering the narthex; it crosses above the first tunnel at A, continues to stone no. 3 in the west bay of the south aisle, from which it can be entered, goes to the urn in the exedra and ends near the southwest pier.

The walls of many of these channels are undoubtedly of sixth century construction. Where they pass under doorways, they are spanned by the heavy sill stones (a crack under the door above point A permits this passage to be seen from the narthex) [22] and in the aisles by rough slabs of marble carrying the polished floor slabs.

[22] Antoniades i, p. 171, states that the crack opens into a dark "basement" containing water 1.5 or 2.0 m. below the floor. Because the match he used for light was extinguished by the current of air blowing from the opening, he is unable to give further details.

At J in the tunnel from the north end of the narthex to the outer narthex, there is an upright piece of marble ornamented with moldings, which seems to be a door jamb of the earlier basilica still in situ. The tunnels appear to belong to a sixth century drainage system, but the date of the vaulted passage, though apparently Byzantine, is not clear. The removable stones by which the passages are entered were undoubtedly laid in Turkish times, perhaps in connection with piping water to the urns in the exedrae. The important fact for this discussion is that the passages do not at any point reach the depth of the "basilica stone" in the well or the rock floor of the site.

The above conditions, supplemented by the discovery of natural rock at the same level beyond the north wall of the building in well no. 8, show that, if cisterns were built symmetrically in connection with this or previous structures, they would have been excavated for their full depth from solid rock. Two considerations make this hypothesis unlikely: cisterns elsewhere in the city are floored on rock but their walls rise from it;[23] the rapidity with which Haghia Sophia was built precludes the possibility that construction was delayed by large, time-consuming excavations in the central area of work.

The northwest pier of the dome stands upon natural rock, as indicated by the presence of rock near the center of the nave and beyond the north wall. The geological character of the site does not warrant the assumption, however, that the other three piers also are built upon rock.

Geological reports [24] show that the region of Istanbul was subject to two epochs of mountain-building. Since the two thrusts acted approximately at right angles to each other, the resulting geological structure is very complex. Folded Devonian schists appear to form a crest near the site of Haghia Sophia and pass under southward-dipping Tertiary beds. Haghia Sophia is therefore located on the crest of a Devonian anticline. As the exact relation of this crest to the building cannot be determined from available maps of small scale, three possibilities must be considered: the piers of the dome may stand on Devonian rock which is old and well consolidated and therefore relatively good foundation material; they may stand upon Tertiary beds which are younger and less well consolidated; or they may straddle the crestline, the north piers standing upon Devonian and the south upon Tertiary. In the absence of precise geological data, the only basis for judging the situation is a comparison of the probable effect of each set of conditions with the existing state of the structure.

For several reasons the building appears to stand on the Devonian rock. The strike and dip of strata in the well conform to indications in the geological maps. The deformation of the four piers, measured at nave floor, gallery and springing of

[23] See footnote 16. Also S. Casson, "Les fouilles de l'Hippodrome de Constantinople," *GBA*. April, 1930, pp. 236 ff.

[24] Professor Morris finds that the only helpful sources of information on the geology of Istanbul are: E. Chaput, *Voyage d'Etudes géologiques et géomorphogeniques en Turquie*, Paris, 1936, and W. Penck, *Grundzüge der geologie des Bosporus*, Berlin, 1919, which are too general in character to specify the conditions of the site of Hagia Sophia. The conclusions reached beyond this point are therefore largely the result of discussion with Professor Morris and Dr. Karl Terzaghi, who is familiar with the geological conditions from residence in Istanbul.

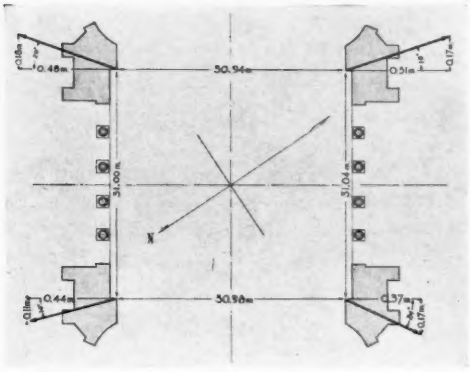

FIG. 6—DIAGRAM OF INCLINATION OF THE PIERS OF THE DOME

the dome arches, is as follows (fig. 6): they lean backward an average of 0.45 m.; they incline away from the transverse axis an average of 0.15 m.; the angle of deflection of the piers averages 19 degrees. It is important that the deformation of the piers is relatively symmetrical. If the two south piers stood upon Tertiary beds, they would show exaggerated deformation, no evidence of which is apparent. Likewise there is no evidence of dislocation caused by slipping of Tertiary beds over the Devonian strata during earthquakes, for the maximum variation of 0.10 m. in the sides of the square formed by the piers is insignificant. These facts suggest that the four piers are built upon Devonian rock and that their symmetrical deformation is due mainly to the thrust of the dome. Perhaps some allowance should be made for deformations resulting from earthquakes.

Buildings constructed on solid rock have seldom been injured by the waves coincident with earthquakes. These waves chiefly affect structures standing upon loose, unconsolidated materials, sometimes twisting them end for end or moving them bodily several meters. Structures built upon solid rock are little affected by these surface waves. They are affected by the vibrations which the waves cause in the rock and which are transmitted through it to the structure. In small buildings the vibrations do little harm; in large ones they are transformed into kinetic energy which causes failure without actual dislocation of the foundations. Hence, if the piers stand, as the findings would suggest, upon Devonian rock, the injuries sustained by Haghia Sophia during earthquakes appear to have been the result, not of shifts in the foundations, but of the kinetic energy generated by accompanying vibrations.

This brings us to the crux of the matter: what part these factors played in the failure of the first dome. The pressure exerted by the piers at floor level, estimated from Salzenberg's [25] incomplete data, appears to approximate 105 tons per square meter, if uniformly distributed over the 110 square meters occupied by the piers and buttresses. This figure is well within the allowable compressive limit for stone construction. While the exact form of the foundations is not known, if the footings widen appreciably below the floor, the pressure on the surface of the rock approaches this amount. Under the weight of the piers alone, any subsidence would have been vertical, but the radial thrust of the first dome, the rise of which was between 6.0 and 7.0 m. less than that of the present dome, tended to tilt them outwards. The thrust increased the pressure on the rock at the outer edges of the piers and buttresses, and reduced it on the inner edge. A localized pressure of the order of magnitude of 100 tons per square meter on the surface of a weak rock such as the Devonian

[25] These estimates prepared by Professor Gelotte at the outset of the investigation from Salzenberg's data will later be revised to correspond with the more detailed information now in hand.

schists is sufficient to cause a slow plastic flow.[26] It has been observed, for example, that a hard and coarse-grained igneous rock deformed slowly but continuously under the influence of very moderate stresses. Since the pressure on the base of the pier increased from the inner towards the outer edge, the plastic flow was necessarily associated with an outward tilt of the piers.

The piers and buttresses tipped backwards, not as one unit on a single foundation, but as separate elements, for the relatively thin crowns of the arches joining them at the nave floor, gallery and gallery roof, were easily sheared off by the forces involved. As the span of the transverse arches gradually widened over a period of years, the poise of the superstructure became increasingly precarious. It is amazing that the earthquake of 557 did not bring down at once the entire dome.

Original form of the Outer Wall of the Southeast Buttress.

One of the most obvious deficiencies in existing drawings of Haghia Sophia is the lack of accurate sections of the buttresses supporting the piers of the dome. Not only are the buttresses vital elements in the structural system, but because interior walls and vaults of the nave are hidden by marble paneling and mosaic, and the exterior by stucco, the bare walls of stairwells enclosed within them are the only places where the fabric of the building can be examined. Cracks, deformations, and changes of materials and techniques visible in these modest spaces are today the most dependable available evidence of injuries and alterations endured by the building.

The form of the buttresses is known, but, because the openings which originally lighted their stairwells are blocked by exterior stone buttresses [27] rising against the outer wall as high as the gallery roof, early investigators were confronted here with Stygian darkness. Published studies consequently contain numerous inaccuracies and omissions, and the masonry has been described only in general terms. The use of extensions from the electric lines now serving the museum permitted full investigation of the southeast buttress, the only one of the four in which the whole original stairwell can be examined.

One of the many problems offered by the buttresses is to identify the original form of their outer wall. As the analysis of thin sections of brick and mortar is still in process, this identification will be made by inspection of the masonry in part of the southeast buttress which is integral with the initial construction. The discussion begins with a general description; it then presents details of the four kinds of masonry in this limited portion of the stairwell; finally, upon this evidence the original form, as well as the nature and date of later alterations, will be identified.

Southeast buttress: General form.

At ground level the buttress (fig. 7) consists of two thick walls between which a vaulted passage leads from the aisle of the nave to a blocked doorway through the

[26] Dr. Terzaghi, in explaining this phenomenon of the compression of supposedly solid rock, numerous instances of which he has observed in his professional experience, quoted a well-known petrographer to the effect that "the compressive strength of rock is a function of the patience of the observer."

[27] The first external buttress built against the south wall of the stairwell appears to have been erected by Andronicus Paleologus in 1317: J. P. Richter, *Quellen der Byzantinischen Kunstgeschichte*, Vienna, 1897, p. 63.

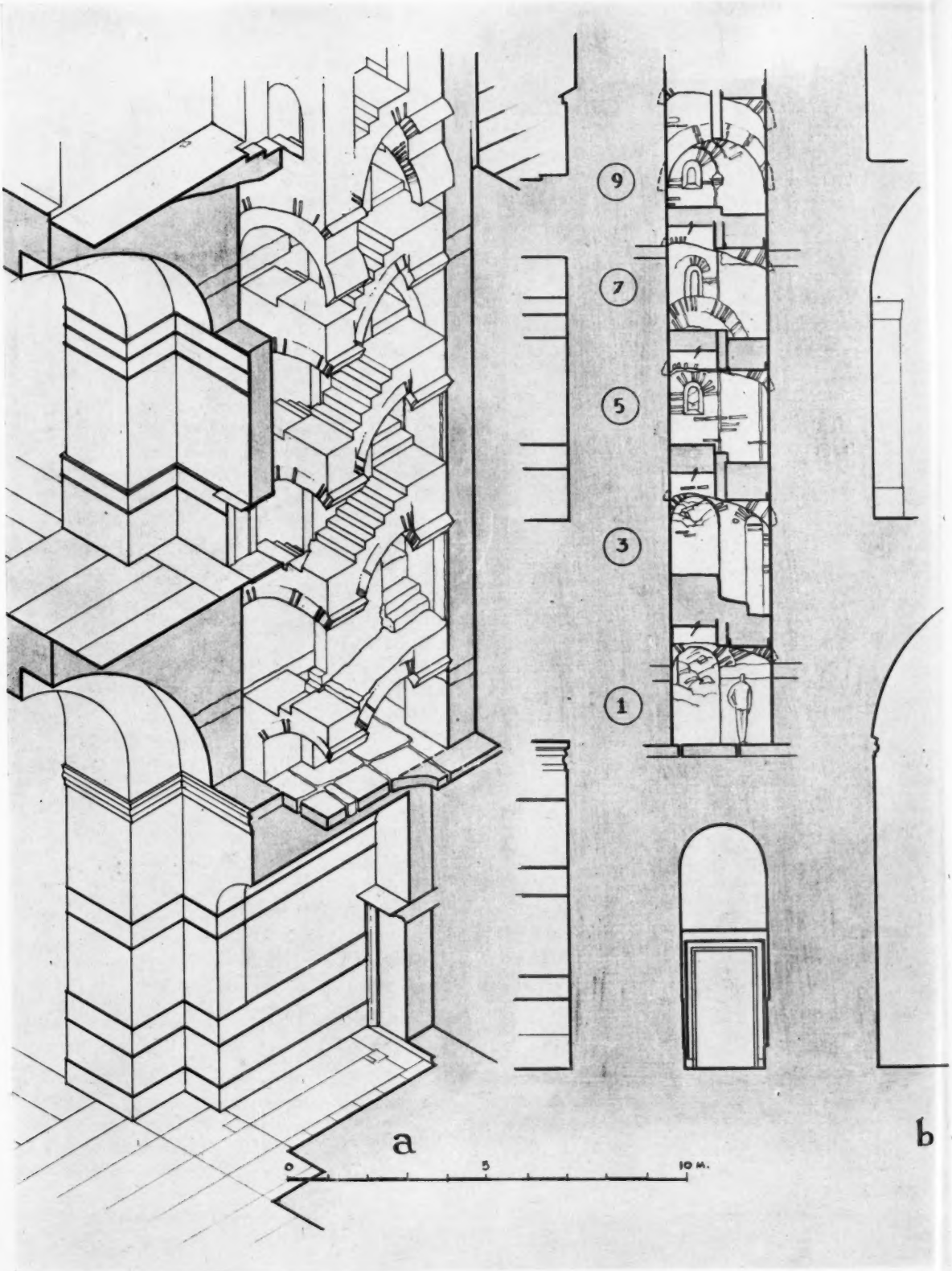

FIG. 7—SOUTHEAST BUTTRESS: (A) ISOMETRIC SECTION (B) ELEVATION OF INTERIOR OF SOUTH WALL

peripheral wall of the building. At the gallery the form is similar, except that, in place of an open passage, there is a stairwell, 2.50 wide by 3.50 m. long, entered through a low door in a transverse wall. The enclosed stairway descends a turning and a half below the gallery to a cul-de-sac above the extrados of the vaulted passage beneath. An arched opening, now blocked, formerly gave access to a subsidiary structure in which stairs continued to the ground. The stairs ascend from the gallery to the roof of the buttress.

Arches carrying the stairs are in general of two kinds: those supporting landings of one or two steps, which are parallel to the narrower end walls, spring from notches cut into finished brickwork of the side walls and have a low curvature. Those carrying flights of steps, parallel to the longer side walls, rise more steeply from imposts beveled into the face of one landing arch and abut against the face of the alternate landing above. Except for the imposts notched for landing arches, the system of stairs is entirely independent of the walls.

A central partition carried on an arch supported by the first two landings in the same manner as the stair arches, continues throughout the height of the buttress. At landings 8 and 9, the headroom of the stairway is reduced by round arches inserted beneath those supporting the stairs; the rectangular space is encroached upon at level 10 by masonry piers carrying smaller round arches. Above this point the end walls of the well cannot be examined.

The present discussion is concerned with the portion of the stairwell between levels 1 and 10, in which the details of all four walls are visible. The north wall contains the springing of the vault connecting the pier and the buttress; the two side walls of equal thickness support the vaults of the central and end bays of the aisle and gallery; the south wall containing a series of former openings is the peripheral wall of the building. Since these walls, supporting essential vaults, are regularly bonded together, their masonry may be considered typical of the original period of construction lasting from 532 to 537 A.D.

Masonry of the walls of the stairwell.

As stone courses occur but three times in the height of 16 m. between the foot of the stairwell and level 10, it is obvious, in spite of recent suggestions to the contrary,[28] that the walls of Haghia Sophia are of pure brick construction. A study of the masonry is consequently concerned chiefly with brickwork, but before it is discussed, the reason for the insertion of stone courses will be explained.

Stonework.

Courses of stone occur in the floor of the stairwell, in the walls 1.50 m. above the floor, and 10.50 m. higher at level 8. The stones of the floor—the smallest measuring 0.27 by 0.80 m. and the largest being an L-shaped block spanning the full width of the well—are bonded into the side walls. Joints range from 0.02 to 0.05 m. wide, in spite of irregularities in the shape of the stones, the thickness of which varies from 0.25 to 0.34 m. Thus the blocks appear to have been fitted in the process of being set, rather than prepared beforehand according to specification.

In the second course, 1.50 m. above the floor, the upper surface of the stones is

[28] Swift, *Hagia Sophia*, p. 50.

level in spite of variations in thickness amounting to 0.15 m. This course is regularly bonded at the corners of the well.

That at level 8 differs from the course at level 1 in that it is not continuous across the north wall but stops an equal distance from the side walls, leaving a space which is filled with regular brickwork. The course is not regularly bonded in the corners of the well; instead, L-shaped stones form the angles. While equal lengths of each lie in the north wall, the longer leg of one is embedded in the east wall, the longer leg of the other in the west. The relation of this and the lower course to the vaults which spring from the buttress indicates the reason for their insertion.

Choisy[29] has shown that approximately the first third of the rise of Byzantine vaults and arches is composed of regular horizontal brick courses which continue above the springing. Both stone courses lie at a corresponding height with regard to the vaults and arches which spring from the buttress. That at level 1 fills the 0.80 m. thickness of the south wall; interstices between stones in the side walls can be penetrated for a depth of 0.98 m. It seems probable that the stones in the north wall continue 1.15 m. to the soffit of the vault which spans the aisle of the nave. These two courses therefore appear to have been inserted as stone springers for the adjacent vaults rather than as ordinary bonding courses.

Brickwork.

In setting up a basis of comparison for differentiating various kinds of brickwork, the color of individual bricks cannot be employed because every square centimeter of the walls, arches and stairs, even deep in holes and cracks, has been covered with lime-wash on more than one occasion. Further, the almost perfectly preserved state of the walls prevents observation of the inscriptions or monograms frequently stamped on the surface of Byzantine bricks.[30] Comparison will have to be based upon the dimensions of the exposed edge of bricks and the width of joints.

In the four walls at the foot of the well, the thickness of individual bricks varies from 0.045 to 0.06 m., the length, from 0.35 to 0.38 m. (fig. 8). Ten courses of bricks and joints measure 0.96–0.97 m. The ratio between the thickness of brick and the thickness of mortar joint is therefore 1 to 1.15. Vertical joints between bricks vary in width from 0.01 to 0.10 m. Horizontal mortar joints have a slightly concave section which appears to have been made by the stroke of a rounded paddle.

It should be made clear at this point that the visible mortar joint (fig. 9) is not structural mortar, but a thin layer of lime, sand, marble dust, and fine grains of

[29] Choisy, *op. cit.*, pl. ii, l.

[30] It is the general belief that the bricks of which Haghia Sophia is constructed carry the inscription +ΜΕΓΣ / ΕΚΚΛΣ "Of the Great Church," which has been interpreted as a dedication to Haghia Sophia. To be of value, an inscription must be found in situ in a wall of known date. There is no way at the present time of ascertaining whether the majority of bricks carry such an inscription, for holes from which timbers have rotted away are the only places in which brick stamps can be found in original walls of the building. The only stamp in the height of the walls under discussion is found on a brick spanning a hole in the east wall above level 2. It carries the inscription +ΚΟC / Τ Α Ν. Examination of all such holes in the four buttresses failed to reveal a single example of the inscription in a wall of unquestionable sixth century workmanship.

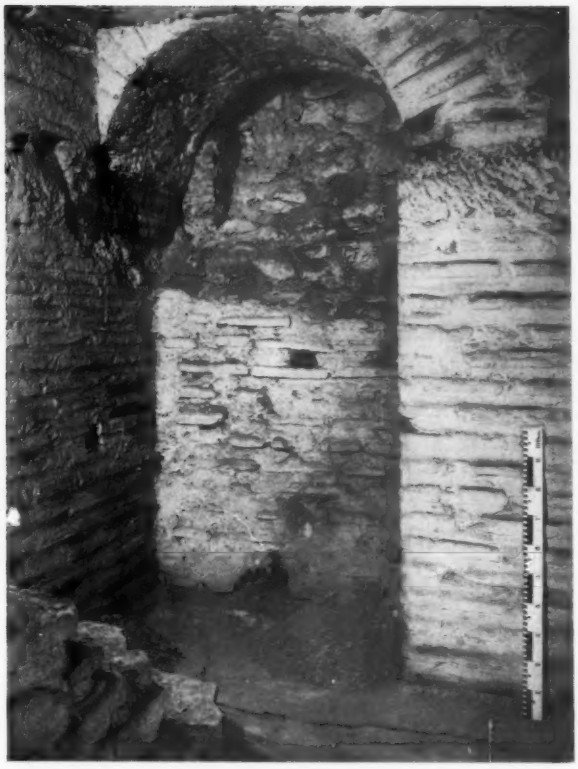

FIG. 8—TYPICAL SIXTH CENTURY BRICKWORK, AT FOOT OF STAIRWELL

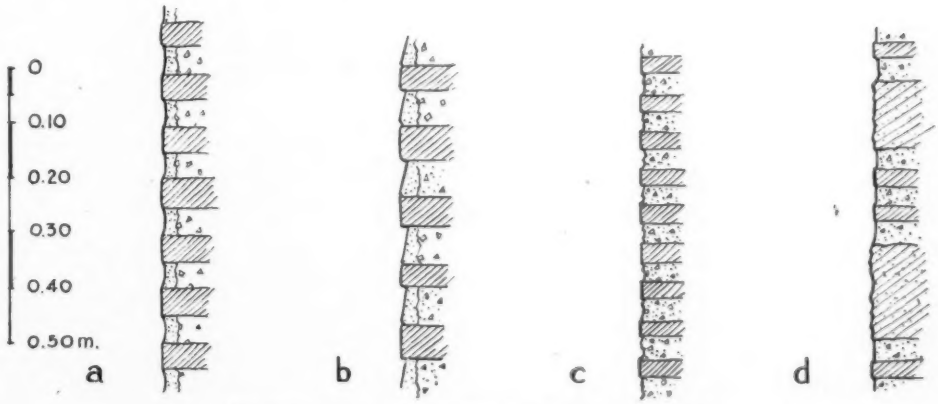

FIG. 9—TYPES OF MASONRY IN SOUTHEAST BUTTRESS

crushed brick applied to it. The structural mortar,[31] which normally begins 0.01 to 0.03 m. from the exposed edge of the bricks, is composed of the same ingredients plus occasional pieces of gravel, which, like the brick chips, would pass through a .015 m. screen. The brick chips impart a slight reddish cast to both the mortars, but the particles are not ground finely enough to suggest that brick was employed for its coloring properties.

Establishment of the average sizes of the bricks makes it apparent that the .80 m. thickness of the south wall is determined by the use of two typical bricks .375 m. long separated by an average vertical joint .05 m. wide. The side walls, which are 2.55 m. thick, appear to consist of six average bricks totaling 2.50 m. plus a .05 m. depth of plaster under the mosaics. Thus the thickness of the walls, as that of modern brick walls, was determined by efficient combinations of the bricks. With mortar joints somewhat thicker than the bricks, however, the ratio of brick to mortar, including vertical and horizontal joints, is 1 to 1.66. There is consequently more than half again as much mortar as brick in the walls of Haghia Sophia.

The characteristics of the uniform brickwork at the foot of the stairwell are given above, but appreciable deviations from these figures occur in higher levels of the same walls. The most significant differences deserve to be noted.

Thickness.

Impressions of finger marks on the broad faces of many bricks show that they were formed in an open mold, and leveled by hand instead of by a tool. Thus the thickness of bricks made in the same mold probably varied before firing.

The edges of the majority of bricks in some areas are badly chipped, while those in areas above and below are uninjured. It appears that their edges were damaged to this marked extent by removal from old walls rather than by rough handling in transportation. That they are found together in the wall came about in the natural course of building the church. Caravan loads of bricks from nearby kilns or from distant ruins would have been unloaded at one point in the supply yard, and, as the reserves of materials were eaten away by the progress of the work, those originally unloaded together would have reached a relatively limited area of the walls. It is clear at any event that a good share of the bricks were reused.

Length.

The length of bricks does not exceed 0.38 m., except for one 0.40 m. long between levels 5 and 6 and another 0.39 m. long above level 9. The minimum size is 0.35 m. except for a few cases which may be broken bricks. Thus the size of bricks manufac-

[31] Professor Morris' identification of a grain of granite sand in a specimen of sixth century mortar is of special interest. This particle probably came from exposures of granite along the Black Sea coast north and west of Istanbul, perhaps from as far away as the Dobruja. It must have been carried by ocean currents to a beach within access of the builders of Haghia Sophia. Sand is brought to Istanbul today from Kylios and Şile outside the Bosphorus on the Black Sea.

The presence of this grain of granite indicates that sea sand was used in the mortar, a fact which might suggest, in view of the quantities of crushed brick also employed in it, that Vitruvius' formula was followed as late as the sixth century. Vitruvius (*Vitruvius, The Ten Books on Architecture*, translated by M. H. Morgan, Cambridge, Harvard University Press, 1914, p. 45) suggested that if sea sand was used, mortar composed of two parts of sand and one of lime would be improved by the addition of a third part of pounded and sifted burnt brick.

tured prior to the sixth century in the region from which these could have been drawn appears to have remained remarkably constant.

Vertical Joints.

While the width of vertical joints usually varies from 0.01 to 0.10 m., between levels 3 and 4 in the east wall the joints range from 0.005 to 0.03 m. wide, the majority being of the smaller dimension. Similar narrow joints are found between levels 8 and 9. The cause of these irregularities may be inferred from circumstances surrounding the erection of the building. In the first place, the size of the undertaking necessitated, as early accounts tell, the commandeering of materials from all parts of the empire, and it may have required the drafting of skilled masons as well. Some may have been drawn to the city when news of Justinian's ambitious project reached their remote villages; others may have assisted in the transport of materials they salvaged and have stayed to work on the building; others may have been drafted against their will. It is possible that the masons represented an aggregation of heterogeneous skills and traditions such as has seldom been concentrated upon a single building. As strictest supervision could not have completely sublimated the diversity of habits inherent in such an assemblage of workmen, these vertical joints less than a centimeter wide may be evidence of a tradition peculiar to some forgotten region of the empire.

Pointing.

Though the pointing contributes nothing to the solidity of the wall, persistent use of it, even in illogical places, indicates that it was considered an essential part of brick masonry. It is found, for instance, on the embedded jambs of arches enclosing the window walls. It can be seen in the gallery on walls of the buttress that were originally covered with marble sheathing. From levels 5 to 6 and at landing 6, on the other hand, irregular areas are unpointed and the aggregate of the structural mortar stands out in relief. As the joints above and below are finished in the usual manner, omission of pointing here seems to have been caused by the raising of scaffolds before this final operation was completed. Consistent use of the concave joint indicates that it was typical of the period.

Slope.

Brick courses in the side walls of the buttresses slope down and away from the building. Though the measurement for any one course is unreliable because of variations in the thickness of the bricks, the average of the five areas in each wall shows an inclination of 1 in 40. This is an indication of the amount the rock under the buttress has been compressed.

Spacing.

Of all variations in the brickwork, the slight progressive widening of mortar joints at the successive levels is the most unusual. The spacing of courses in the east wall varies, for example, from 0.96 to 1.08 m., showing a maximum difference of 0.12 m. In the west wall, which is bonded to the east through both end walls, the spacing ranges from 0.97 to 1.03 m., a difference of 0.06 m., which might result from variations in the thickness of bricks.

A second and more interesting possibility to consider is suggested by tne fact that the most uniform brickwork is found at the foot of the stairwell and that, as higher stages are reached and occasional unpointed areas appear, the spacing shows greater variations. These conditions may result from, and at the same time indicate, the unusual circumstances in which the buttresses were erected.

It is difficult to tell to what extent the design and details of ancient buildings were worked out in models. In the case of Haghia Sophia, however, the fact that the building appears to have been designed and completed in less than six years, makes it unlikely that every detail of the structure was worked out in miniature beforehand.[32] Some parts were probably designed as they were built. If the complication in each element was not fully visualized at the outset, the foot of the stairwell must have been the first point to demand deliberation. The masonry below presented no problems as the simple walls rose from the foundations. At level 1, however, the walls of the buttress incorporate the springings of several vaults and arches of different radii. It is possible that the erection was retarded while the details were worked out. As walls above the gallery merely duplicate problems already solved at this level, it is probable that from here on the masons, proceeding with the controlled recklessness of good mechanics who knew their job, paid less attention to unimportant details.

A final factor, the rapidity of construction, undoubtedly had an effect upon the character of the masonry. In view of the speed with which Haghia Sophia was erected, the pressure of time was doubtless felt in every operation. It is probable that, as the buttresses approached the springings of the great arches, increasing pressure was exerted upon the masons to finish these lower walls so that the vast superstructure could be commenced. The irregular spacing of brick courses in the upper stages of the buttress, as compared with the uniformity found in the lowest level, may therefore be either a measure of the masons' confidence or an indication of the pressure under which they worked.

The following table of the maximum and minimum dimensions is not, of course, presented with a view to giving an infallible rule for the identification of sixth century brickwork. Many considerations besides the variable factors already suggested make the formulation of such a recipe impossible. If, however, the masonry of another part of Haghia Sophia, or of another building, conforms to the following sizes and relationships, it is consistent with brickwork erected in Constantinople between 532 and 537 A.D.

	Minimum	*Maximum*	*Average or Majority*
Thickness of bricks	0.04	0.06	0.045
Length of bricks	0.32	0.40	0.375
Vertical joints (width)	0.005	0.10	0.05
Pointing	Typical mortar joints are pointed with a slightly concave section, though relatively large areas without pointing frequently occur.		
Ten courses (height)	0.96	1.08	1.01
Ratio of thickness of brick to mortar joint			1:1.24

[32] Swift, *Hagia Sophia*, p. 12, suggests that Anthemius had been engaged perhaps for years on an exhaustive study of the project which Justinian had long contemplated. This conjecture does not seem to alter the contention that many construction details had to be solved as the work progressed.

With these characteristics of the original brickwork in mind, it is possible to consider three other kinds of masonry in the stairwell.

The second type (fig. 9, b), also Byzantine, fills a series of former large openings in the south wall.

In the elevation of the south wall (fig. 7, b), it is apparent that the line of the west jamb of the arched openings at levels 1 and 3 in that wall is continued at levels 5, 7, and 9 by an unbonded break. The arches of the two lowest openings consist of two concentric rings of brick which spring from a sloping skewback formed in the regular horizontal courses of the wall. Being part of the original structure, these arches in form and detail can be considered typical of openings built into the initial structure. Above the small openings at levels 5 and 7, however, there are single rings of voussoirs, while at 9, there are three, and the bricks of the unbonded masonry surrounding each opening vary between much wider limits than those of the original walls. Their dimensions are as follows:

Level	*Thickness*		*Length*		*Pointing*	*Ten Courses*	
	Min.	*Max.*	*Min.*	*Max.*		*Height*	*Ratio of Bricks to Mortar*
5	0.035	0.06	0.31	0.38	*Slanted*	1.16	1:1.32
7	0.04	0.06	0.29	0.56	"	1.16	1:1.32
9	0.04	0.065	0.32	0.43	"	1.26	1:1.54

This lack of bond plus variation in brick size would suggest a later repair which employed reused bricks manufactured over a much longer period than those used in the sixth century walls. But there is another more striking difference.

The joints in the unbonded masonry surrounding the three higher openings are distinguished by a wide sloping joint, a weathered joint, so-called, which gives the wall a saw-tooth profile. Beginning one or two centimeters behind the edge of one brick course, the surface of the mortar layer slants forward to the edge of the one below. In some cases the upper edge of the lower brick is marked by a sharp line; in others, the vertical joint is marked by a single tool stroke. This distinctive profile of the wide joints surrounding the openings at levels 5, 7, and 9 is immediately distinguishable from the concave pointing of the sixth century.

The only pure brick construction (fig. 9, c) save for floors and voussoir rings, occurs in the partition, beginning at the entrance from the gallery and continuing to the highest landing in the buttress. Its characteristics are as follows:

Thickness	*Length*	*Vertical Joints*	*Pointing*	*Ten Courses*
0.025 to 0.035	0.28 to 0.29	0.005 to 0.01	None	0.68 to 0.78

Bricks of this same size are found in the rings of the arches inserted at levels 8 and 9. The voussoir rings are a brick and a half deep, but the fourth kind of masonry, above the arch ring, like that of the rectangular piers which support small arches beginning at level 10, consists of two courses of these bricks alternating with one of faced rubble (fig. 9, d).

Finally, another unrelated kind of brickwork is found in the surface of the stairs and landings. Its use as flooring with interstices of less than a centimeter prevents close comparison with the types of wallwork just described, but it has one interesting feature in that the size of the bricks (0.035 to 0.045 m. thick by 0.35 to 0.36 m.

long) falls within the range of typical bricks in the original walls. Despite this fact, however, the bricks in the flooring belong to an extensive Turkish repair.

Original form.

The auxiliary arches at levels 8 and 9, the piers at level 10, the partition and the surface of the stairs are either bonded together or accommodate each other in a way that indicates they were built simultaneously. George [33] identified as Turkish, repairs at St. Eirene in which this smaller size of brick was used, and the location in Haghia Sophia of masonry composed of them confirms his opinion. It might be objected that the size of bricks found in the flooring lies within the range of typical bricks of the sixth century walls, but this fact does not alter the conclusion. The latter are not reused Byzantine bricks. They appear to have been manufactured in Turkish times because their more porous texture and uniform size and brighter color are entirely different from those of the earlier bricks.[34] Also, in the highest landing of the southwest buttress, one brick carries numbers in old Turkish characters that were inscribed before it was baked. In view of the fact that the auxiliary arches at levels 8 and 9 and the rectangular piers at level 10 begin at the termination of the exterior buttress, these repairs may be a part of extensive Turkish restorations.[35]

"Saw-tooth" masonry, like that which fills the former large openings in the south wall, was observed by Schneider [36] in St. Clement's church, Ankara, attributed to the seventh century at the earliest, and again in Kilisseh Cami, Istanbul, erected in the eleventh or twelfth century. As the seventh century is the earliest date reported thus far for such masonry, the filling of these openings in Haghia Sophia could not have been part of the reconstruction by Isidorus the Younger in 563 A.D., a conclusion supported by the unlikelihood that such a radical change in pointing technique

[33] W. S. George, *The Church of St. Eirene at Constantinople*, London, 1913.

[34] Professor Morris' microscopic examination of thin sections of brick specimens reveals that the mineralogical contents both of bricks in the original sixth century walls and of the brick chips in the sixth century mortar are identical with those of the Turkish bricks. Thus the three kinds appear to have been manufactured from marine clay deposits with which the city is amply supplied. As clay deposits of marine origin cover a wide area and are capable of producing bricks of homogeneous quality over a long period of time, the brighter red color of Turkish bricks, as opposed to the lighter and less intense color of Byzantine bricks, probably results, as Professor Voss points out, from different conditions of firing.

The mineralogical nature of a specimen from one of the largest bricks, found in the dome and great arches, is entirely foreign to that of the typical bricks. These therefore appear to be importations.

[35] The insertion of auxiliary piers affected only the northwest and two south buttresses and each of these to a different extent. These small piers begin at the level of the gallery in the northwest buttress, instead of at the gallery roof as in the southeast. It was in part Antoniades' failure to recognize the Turkish character of these auxiliary piers encroaching upon the space of the stairwells that led him to believe that the north side of the building was "slighted" compared with the south side and that its elements were inferior. Because they are not rectangular, Antoniades believed that the shape of the stairwell itself was trapezoidal (Antoniades iii, p. 2).

Restorations carried out at Haghia Sophia by the Turks are unfortunately little known at the present time. It is obvious that extensive consolidations accompanied the erection of the minarets, and the character of stonework in some of the exterior buttresses suggests that they were refinished in Turkish times. The collating of old Turkish records now proceeding under the direction of the Turkish Ministry of Public Instruction will make an important contribution to the history of the building.

[36] A. M. Schneider, *Byzanz: Vorarbeiten zur Topographie und Archäologie der Stadt*, Berlin, 1936, p. 13 f.

could have evolved within the short space of twenty years. It is interesting to note in the filling the presence of bricks .57 m. long, a size found elsewhere in the building only in the voussoir rings of the four great arches and in the shell of the dome. The three small areas of filling in the south wall offer insufficient evidence for a definite conclusion at this time. This will have to wait upon study of the upper stages of the buttress, where there are complete walls of the same technique. It can be tentatively proposed that the series of arched openings occupying the east half of the south wall was filled with bricks salvaged from the ruins by Trdat during his repair of the western arch completed in 994 A.D.

THE DOME.

The amount of the dome of Isidorus the Younger that is incorporated in the present structure has not hitherto been identified, because, curiously, less factual information has been assembled concerning the dome, which is the culmination of the physical as well as the spiritual genius of the building, than about many of its lesser but more accessible elements. As a result of measurement and examination of all features of the dome,[37] it is possible to attempt a solution of this problem based not on hypothetical grounds but upon evidence left by the builders themselves.

The external shape of the dome base formed by extensions of the piers and pendentives is a rectangle with its long dimension transverse to the longitudinal axis of the nave (fig. 10). Although the springings of the four arches are identical in plan, at the dome base, there is a projection from the west face which has no counterpart on the east. The drum of the present dome, which consists of forty piers separated by forty windows, is approximately tangent to the east end of the dome base and coincides with the projection on the west face. As the vertical walls are covered with stucco, the piers of the dome drum with recently applied cement, and the roof with sheets of lead, the actual structure of the dome cannot be seen at any point on the exterior.

The means of access to the interior cornice at the springing of the dome shell is a door beneath the middle window of the southeast quarter. The cornice is a narrow, sloping ledge, composed of blocks of Proconnesian marble which rest on the crowns of the supporting arches and the pendentives. As the projecting ends of the stones overhang the rim of the pendentives and the other ends support the masonry of the dome shell, the cornice is in reality a marble springer course between the brickwork of the pendentives and that of the dome. It slopes at an angle of approximately 9 degrees toward the theoretical centerpoint of the dome curve (which subtends an angle of 162 degrees) in order to bring the thrusts of the dome normal to the cornice. A glance at the plan reveals that the cornice is not a perfect circle. In addition to other irregularities, the north-south diameter between the overhanging lip is 31.90 m.,

[37] The study of the dome was exhaustive as far as visible and accessible structural data are concerned. One feature could not be fully investigated—the patterns of early mosaics on the base of many ribs of the dome which are at present obscured by a particularly tenacious kind of paint. The uncovering of these hitherto unrecorded patterns, one of which actually overlies an earlier design, will add further information to this purely structural study. As the applied mosaic decorations necessarily suffered injuries and repairs simultaneously with the structure, it is improbable that the conclusions reached herein will be greatly altered by future investigations of this surface decoration.

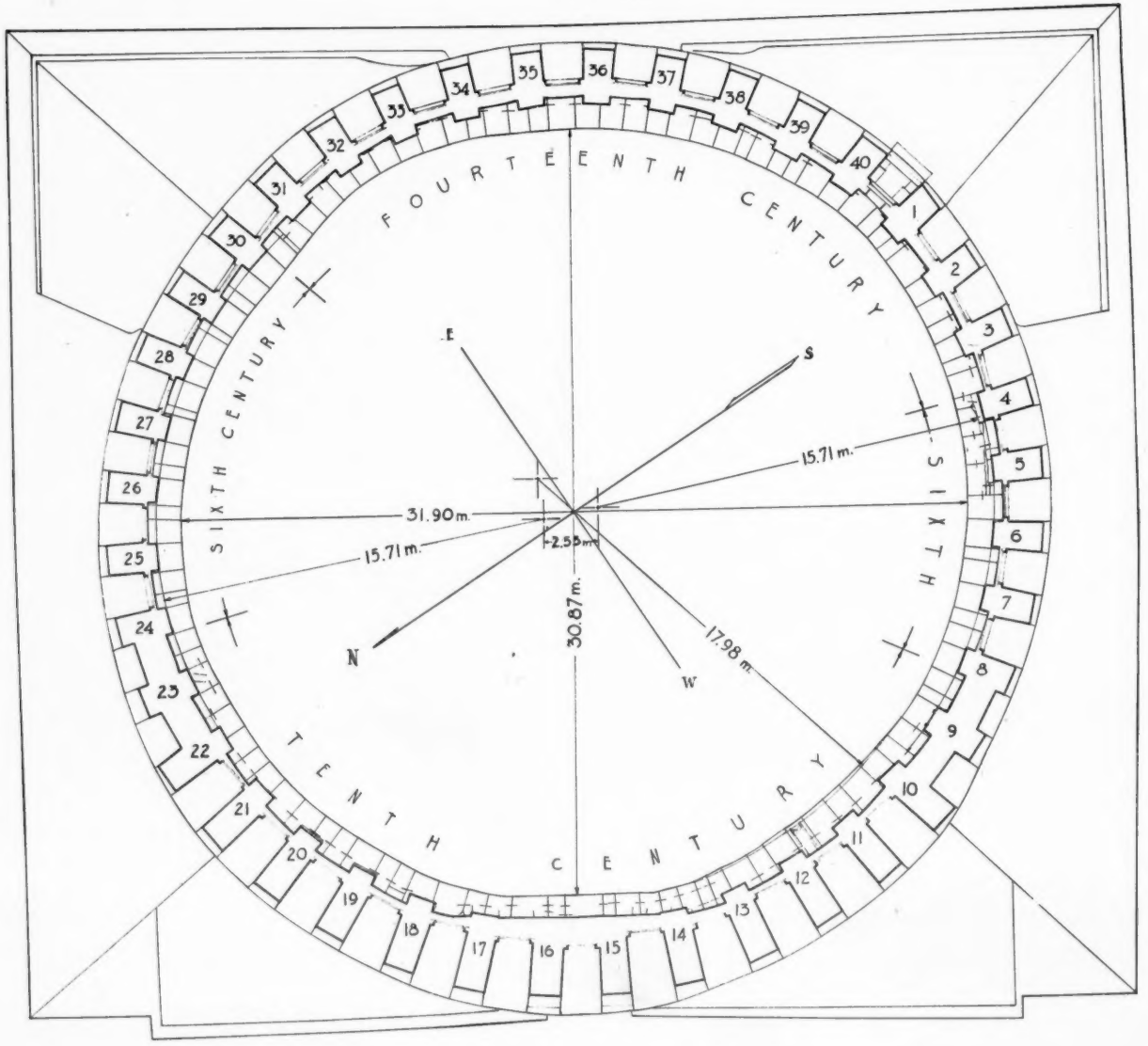

FIG. 18.—PLAN OF DOME

while the east-west diameter is 30.87 m. Calculated with the larger figure, the lip of the cornice is found to be almost exactly 100 m. in circumference.

The dome consists of a shell of masonry with 40 integral ribs corresponding to the piers of the drum, which project 0.38 m. at the springing but die into its surface in a circle 7.0 m. from the crown. The ribs and shell are covered with mosaics or, where these have fallen, with painted plaster restorations. As the actual structure is visible only in small areas of disrepair, neither on the exterior nor the interior can enough be seen to permit determination of its condition. There is, however, one accessible source of information on the vicissitudes which the dome has endured.

The upper surface of the 117 stones which compose the cornice, being invisible from every other part of the building, was not originally tooled to an anonymous polished surface and there has been no reason for subsequent alteration. The circuit of the cornice is divided into four distinct segments by variations in surface tooling, by differences in size and spacing of stones, and by the presence of a line incised at the face of certain ribs. This line is continuous in the cornice stones across the crown of the northern and southern arches, the failure of which has never been reported; it is lacking over the crown of the western arch, which fell in the tenth century, and over the eastern arch, which collapsed in the fourteenth. As the cornice includes stonework erected by known architects within three definitely dated periods, at intervals of 400 years in the Byzantine epoch, the evidence supporting identification of the parts of the second dome which have stood for nearly 1400 years is almost as important as the conclusion itself.

To facilitate reference to points in the cornice, the ribs are numbered clockwise from 1 at the west side of the entrance to 40 at the east, following numbers that have been stenciled on them in red paint at some recent date.

Starting clockwise from the entrance, the line is first found at the east corner of rib 4. It is not visible along the face of the rib, with which it coincides, but emerges from the west corner and continues across the intervals between ribs (fig. 11) as far as the joint beyond rib 9. All stones inscribed with the line have a surface texture produced by a five-pointed tool and are so arranged that each rib stands on a single stone. No joints are secured by iron clamps save among damaged stones before ribs 4 and 5. The lip of

FIG. 11—DETAIL OF CORNICE STONES AT RIB 6

the cornice, measured between ribs 5 and 6 above the crown of the south arch, is 41.275 m. above the center of the nave floor, at which point the surface slopes .22 m. in a width of 1.435 m. (fig. 12).

In the segment across the crown of the western arch from rib 10 to the east edge of rib 22, no continuous line occurs at the face of the ribs, although, before ribs 10 to 13, a curve is inscribed near the lip of the cornice. Individual stones in this segment are of such varying sizes that several ribs straddle two stones; each joint is secured by one and sometimes by two iron clamps which extend in some cases under the ribs and breast wall; the majority of stones carry marks of a broad chisel, but the claw-tooled texture characteristic of the adjoining south segment is also found. For a running length of 6.50 m. in front of ribs 14 to 17 (fig. 10), both the overhanging lip of the cornice and the masonry of the breast wall are straight. Ribs 15 and 16 are flush with this straight wall and ribs 14 and 17 project only slightly from it. A section through window 15–16 (fig. 12) above the crown of the western arch reveals that the cornice slopes 0.03 m. in a width of only 0.89 m. and that its lip is 0.50 m. higher than at the corresponding point over the crown of the south arch.

From the reappearance of the line at the east edge of rib 22 to its end at the joint beyond rib 30, at which point the cornice is noticeably convex, the stones are identical with those along the opposite south segment. Between ribs 25 and 26 over the crown of the northern arch (fig. 12), the cornice slopes 0.21 m. in a total width of 1.49 m. and the lip is 0.17 m. higher than at the crown of the south arch.

In the segment between rib 31 and the east edge of rib 4, there is no line either at the face of the ribs or at the overhanging lip. Stones are of irregular sizes and some ribs straddle two joints; each joint is secured with iron clamps, many of which extend under the ribs and breast wall; the texture of individual stones varies from the pitted surface left by a single-pointed tool to a smooth polish; finally, a number of stones with rough surface have a polished band along one edge. Between ribs 35 and 36 above the crown of the east arch (fig. 12), the lip is 0.025 m. below the corresponding point of the south segment and the cornice inclines 0.16 m. in a width of 1.33 m.

The foregoing description shows how distinctly the cornice is divided into segments which conform to the history of the dome. The obvious repairs evidenced by the irregular shape of the cornice, the uneven stonework and clamped joints, occur above arches which are known to have failed in the tenth and fourteenth centuries. The segments over the north and south arches, the collapse of which has never been reported, are similar in form and regularity of stonework, and the ribs of both are marked by a continuous setting line. This line therefore must have been inscribed by Isidorus the Younger during construction of the second dome.[38] Further examination may reveal the portion of the existing dome built by him.

[38] Published theories as to how the second dome was built on the deformed masonry left by the failure of the original dome are fully explained by Swift, *Hagia Sophia*, pp. 154 ff. The first suggestion, advanced by Millet (G. Millet, "La Coupole primitive de Sainte-Sophie," *Revue belge de Philologie et d'Histoire* ii, 1923, assumes that the entire superstructure was rebuilt above the springing. The second, put forward by Conant (*op. cit.*, note 15), proposes that the visible lateral arches were widened by a progressive "piecing out," so that the soffit, which is 0.91 m. wide at the springing, gradually increases to a width of 1.40 m. at the crown. Millet's theory, involving complete reconstruction above the spring-

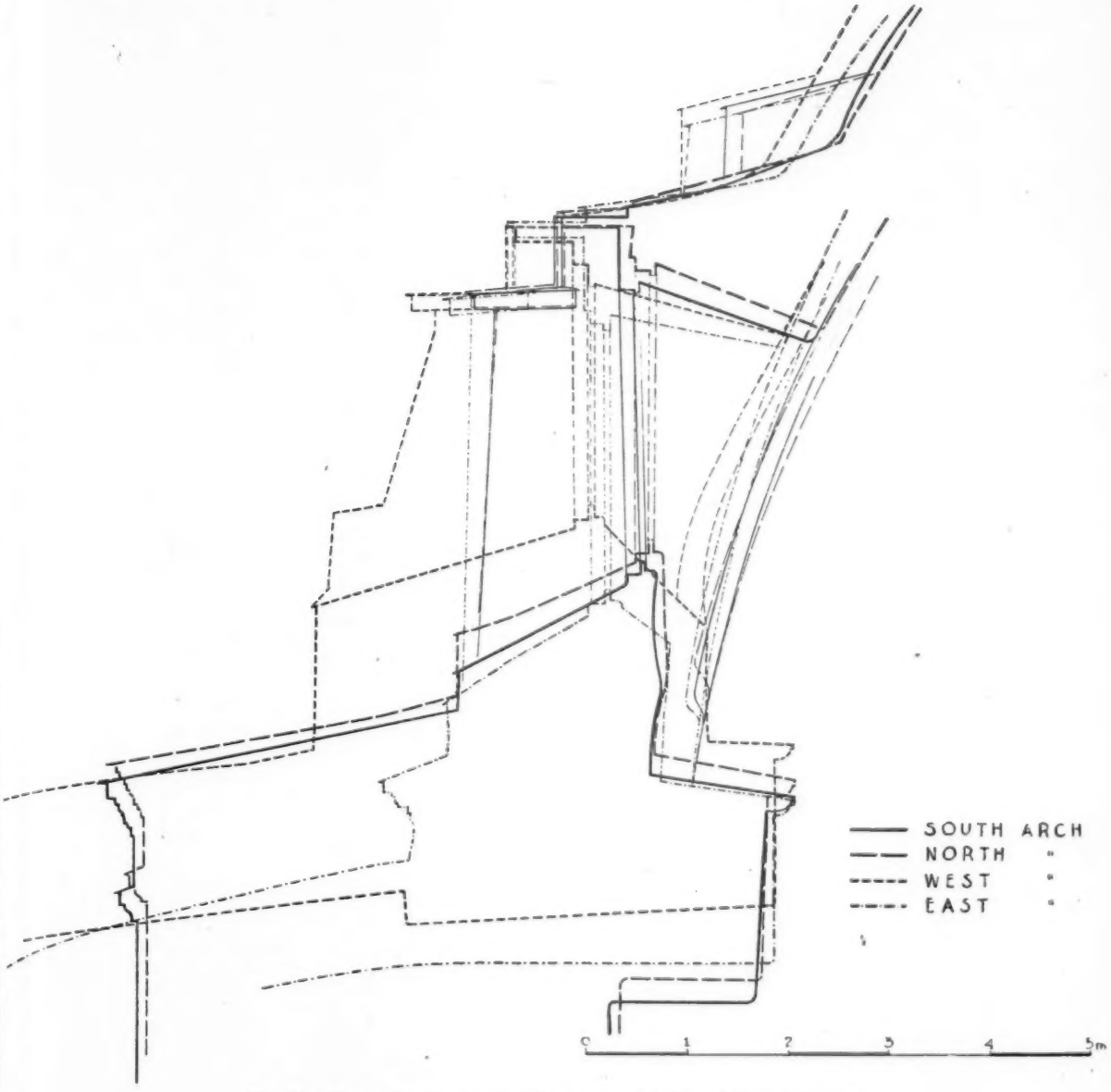

FIG. 12—SECTIONS THROUGH THE CROWN OF THE FOUR GREAT ARCHES

Cornice stones of the north segment, including ribs 23 through 30, consist of three general sizes: each rib rises from a single stone as wide as or wider than the rib (1.0 to 1.12 m.); intervals between ribs are uniformly filled with a narrow stone (0.35 to 0.63 m.) and a broad one (0.83 to 1.12 m.). Radial joints (averaging 0.015 m. wide) are filled with mortar, not with lead as Salzenberg[39] states on authority of Paul the Silentiary. In contrast to the finesse with which the radial edges are fitted together, their projecting lip shows numerous variations, being on some stones a straight line and on others a reverse curve. The overhanging soffit is ornamented by channeled patterns, the width of which is unequal on different stones and the regularity broken at the joints. The claw-tooled surface of the stones, however, is homogeneous, if allowance is made for variations in the spacing of teeth in different tools and for individualities in the strokes of different stone masons. Finally, the inscribed line passes from one stone to another without the slightest jog. By geometrical construction on the measured plan of the dome (fig. 10), the line is found to coincide with an arc of a circle having a radius of approximately 15.71 m.

The details of undamaged stones in the south segment containing ribs 4 through 9 are identical with those described above, to the extent that the radius of the setting line again measures 15.71 m. It is especially significant that the center points of these two curves are separated by a distance of 2.55 m.

The method by which Isidorus the Younger constructed the cornice may be inferred from the conditions just described. These appreciable variations in ornament and curve seem to indicate that stones of odd sizes were carved on the ground according to a general scheme but without absolute uniformity. After they were raised to the height of the cornice, their edges appear to have been carefully shaped so as to make the joints essentially radial to the centerpoint from which the inscribed curve was later marked. In this process the regularity of the ornament appears to have been ignored. The fact that changes in level across the joints are imperceptible, even though no instance is found in which a tool stroke passes from one stone to another, seems to prove that the surfacing with a claw-tool was done after the stones had been set in position. The curving setting lines appear to have

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ing of the great arches, seems improbable in view of the economy with which Byzantine architects worked. Conant's suggestion, based on recent examination of the building, appears to be right in principle, but Swift objects with reason that this gradual "piecing out" would have been a difficult achievement from a technical standpoint.

It is possible to suggest another solution which seems justified by the condition of the arches and tympanum walls. While dimensions cannot be given, the widening does not appear to be gradual, but seems to begin on line with the haunches of the eastern and western arches, which are level with the deformation in the tympana. Why then could not the lateral arches have been widened only from the haunch, the point at which round arches characteristically fail? The dome has been repaired on two occasions by joining new masonry with old. The widening of the lateral arches could therefore have been started from the haunches, the natural point of failure of the eastern and western arches. This interpretation seems to be verified by photographs: see A. M. Schneider, *Die Hagia Sophia zu Konstantinopel*, Berlin, 1939, pl. 25; Swift, *Hagia Sophia, pls.* xxiii and xlvi.

[39] Salzenberg, p. 21. Salzenberg's drawings show the cornice as horizontal. The inclination of the cornice is a feature of such importance to an understanding of the dome that omission of it is a serious oversight. It suggests that though Salzenberg had the use of Fossati's scaffolds and probably saw more of the bare structure than any other investigator, the scaffolds themselves may have made the cornice inaccessible.

been marked on the finished cornice as a last operation, probably with a chisel held in a loop at one end of a rope which was fastened at the other to poles at the centerpoints. In order to lay out these curves it is obvious that there must have been, at this stage in the construction, a platform at the center of the dome and an unobstructed distance to the outer rim of the cornice.[40]

The most significant implication of the two curves lies in the fact that the distance of 2.55 m. separating the two centerpoints is greater by a meter and a half than the total lateral deformation for which Isidorus the Younger compensated by increasing the width of the lateral arches. As this initial dislocation was the greatest the structure has suffered, it is therefore certain that he built an elliptical dome, the two shorter radii of which measure 15.71 m. The presence of the line before the six ribs 4 through 9 and the nine ribs 22 through 30 would suggest that these fifteen ribs belong to the dome of Isidorus the Younger. Actually, however, this is not the case.

The presence of the inscribed line is not necessarily proof that a stone occupies today its original position in the cornice. A stone between ribs 18 and 19 has, for example, both the characteristic tooling of segments of the second dome and an identical line which is here in a meaningless position. It is therefore obvious that stones salvaged from fallen segments of the cornice were reused. To determine the precise amount of the dome of Isidorus the Younger that remains today, the broken ends of the incised line (fig. 13)[41] must be further examined in relation to the ribs which rise from them.

Correlation of evidence in the ribs as well as the cornice shows that though rib 9 adjacent to the south segment of the earlier dome and ribs 22 and 23 connecting with the north segment are marked by the line, all three were rebuilt during the tenth century repair. At rib 9, the edges of stones 30 and 31 are uneven along an unusually wide joint; the stones are held together by one clamp and contain holes for two others that were never inserted; one of these holes lies underneath the edge of the rib. Also, though the lip of stone 31 projects slightly in front of the lip of 30, the line on the former is slightly behind the face of rib 9. This difference between the lip and the line on two adjacent stones proves that the arc could not have been inscribed while the stones occupied their present position. Thus stone 31 was salvaged and reset. Further, the two rectangular projections from the face of rib 9 are the ends of large irons embedded in its masonry, a condition unique among the forty ribs of the dome. The position of the empty clamp hole under the edge of the rib, the failure of the lines marked on the two stones to coincide, and the presence of iron reinforcement in the rib combine to prove that rib 9 was entirely rebuilt

[40] Choisy, *op. cit.*, p. 66. Choisy's assertion that the dome was built without centering has frequently been questioned. It seems unlikely that a small scaffold was built to the height of the cornice only to lay out the curve of the dome. Rather, the platform appears to have been part of extensive scaffolds which continued higher with the erection of the dome shell after the cornice had been finished.

[41] This drawing of the broken ends of the line shows iron rods from which lamps were suspended and holes in the stones, etc. The Fossati railing, the posts of which rest on the surface of the stones, is omitted. As the iron pipes which support the railing have one end let into a lead-filled hole which alters the original surface of the stones, they are included in the drawing. The stones, like the ribs, are numbered clockwise from 1 to 117, beginning at the entrance to the cornice.

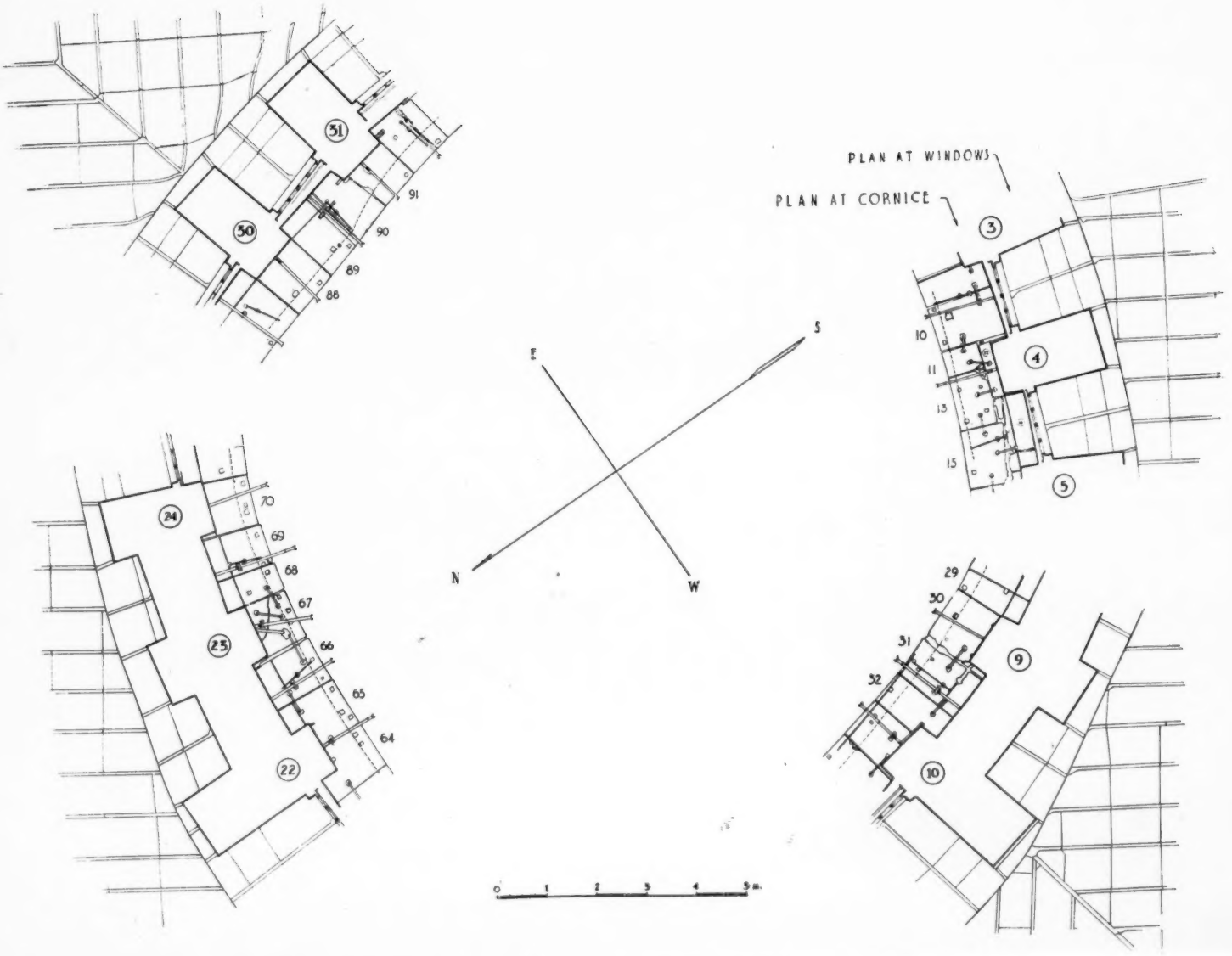

FIG. 13—CORNICE OF DOME: DETAILS OF CORNICE AT ENDS OF RESTORED SEGMENTS

in the tenth century restoration. This supposition is confirmed by a distinct deformation in the west edge of rib 8 (fig. 14, a) where it dies into the spherical surface of the dome. The irregularity appears to have been caused by the failure of the curve of the tenth century repair to coincide with that of the remaining segment of the second dome.

At the western end of the northern segment (fig. 13), the line on stone 65, which lies 10 m. behind the face of rib 22, is farther from the lip than that on 66. The parts of stone 67, which is cracked, are held together by two clamps on its surface, one of which extends under rib 23; a third clamp runs lengthwise of joint 66–67, both unusually wide and empty of mortar for a depth of .15 m. These clamps must have been inserted before the rib was constructed. That neither rib 22 nor 23 belongs to the second dome is further substantiated by the fact that the deformation in the shell occurs at the west edge of rib 24 (fig. 14, b). Hence, the fifteen ribs 9 through 23 belong to the reconstruction executed by the Armenian, Trdat, in the tenth century, the hitherto unsuspected extent of which can now be defined.

Stones of this segment are for the most part tooled with a broad chisel. In spite of this relatively consistent surface texture, however, the majority of stones appear to have been reused rather than specially prepared. Salvaged stones have already been found at both ends of the repair; another has been identified near rib 18; and a stone near rib 12 carries unfinished details carved for some other purpose. The most obvious proof of the employment of reused material is found in the haphazard jointing that results from the inclusion of perfectly rectangular stones. At the west edge of rib 20 (fig. 15), for example, adjacent stones are in contact at the lip, but the joint widens to a considerable gap before disappearing under the masonry of the dome shell.

The methods employed by Trdat in laying out the ribs are not clearly indicated by the few lines in the cornice. The arc near the lip of the cornice in front of ribs 10 to 13 is a circular segment with a radius of 17.98 m. This line is concentric with the rim of the southwest pendentive, below the cornice, but the curve of the lip diverges appreciably from it; finally, the line begins in the middle of stone 31 and ends, before the beginning of the straight length of the cornice, in the middle of another. From ribs 17 to 22, on the other hand, the lip of the cornice which shows no line conforms to the curve of the northwest pendentive. Ribs 19 and 20 are outlined on three sides by short lines with which they do not coincide (fig. 15). The lines in front of the face, however, are spaced an equal distance from the lip.

The above conditions might suggest that the curve of the southwest pendentive was established from the same center point as the line on the cornice above, and that the curve of both the northwest pendentive and the lip of its cornice were determined from a corresponding center point. Perhaps the stones above the southwest pendentive were set first, without control from the center point. When the resulting irregularity of the lip was noticed, the arc may have been inscribed as a means of locating ribs. Later, in building the northwestern segment of the cornice, the center point of the curve of the pendentive was also used to line up the lip of the stones. These vague suggestions of Trdat's method are less interesting to consider than the radical changes he wrought in the form of the building.

FIG. 13—CORNICE OF DOME: DETAILS OF CORNICE AT ENDS OF RESTORED SEGMENTS

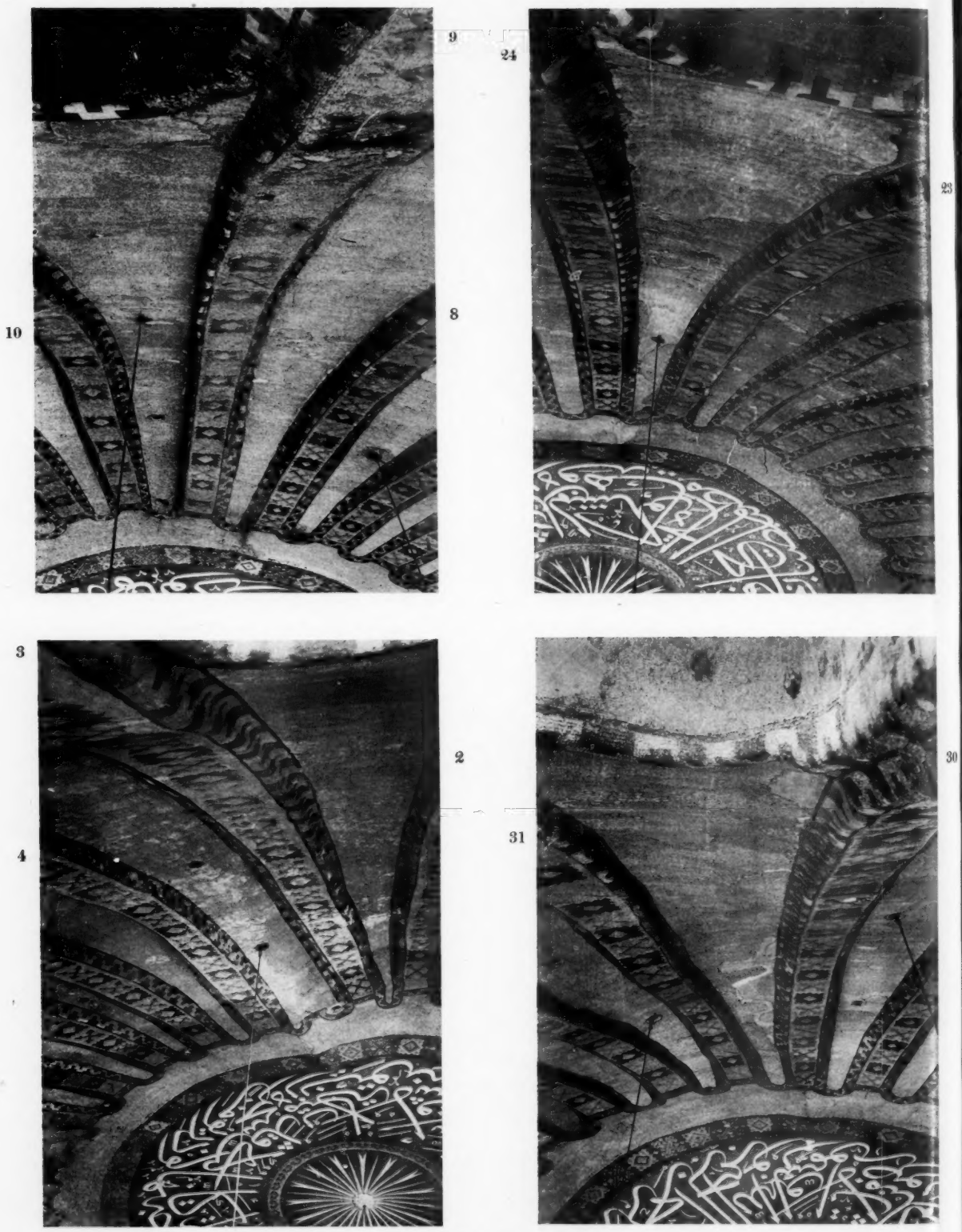

FIG. 14—RIBS OF THE DOME

FIG. 15—WIDE JOINT BY RIB 20

FIG. 16—FALL OF PLASTER BELOW RIB 15

FIG. 17—TRANSVERSE LINE ON STONE 89

The tenth century restoration altered both the external appearance of Haghia Sophia and the principle of support for certain ribs. One of the changes is explained by a small fall of plaster below rib 15 (fig. 16), which reveals bricks of the largest size found in any part of the structure (0.7 m. thick and .70 m. long), standing almost vertically under the brick courses of the rib. These large bricks are voussoirs in the ring of the western arch, the extrados of which rises to a point 1.13 m. above the cornice and creates thereby an arch ring with a total thickness of 2.78 m. (fig. 12). Ribs 15 and 16 spring directly from the extrados of the arch rather than from the cornice as do the ribs of the other three segments. The complications involved in building a curving cornice into the face of an arch seem to have forced Trdat to construct a straight ledge to receive the cornice. Probably because of the spacing of the concentric rings of brick or simply because of a miscalculation, the straight length came half a meter above the cornice in adjoining segments. This deviation from the precedent established by the three arches of the second dome which were standing at the time of Trdat's repair produced the straight length of the interior cornice and altered as well the exterior of the dome base.

It is now clear that Trdat, in addition to giving its voussoir ring a greater vertical depth, increased the horizontal width of the western arch. The intrados of the crown of the adjacent semi-dome is not flush with the intrados of the western arch, but rises above it a distance estimated as .35 m. (fig. 12). This jog occurs on the interior, as shown in the section drawing, 1.0 m. inside the projection from the west edge of the dome base. This projection is actually the exterior face of Trdat's thickened western arch, the extrados of which can be seen curving above the level of the roof. The arch visible on the interior must therefore be paralleled on the exterior by another of slightly larger radius which forms the projecting mass on the west façade of the building. Identification of this projecting mass as a part of the tenth century restoration explains why the dome-base is unsymmetrical, though the springings of the four great arches are identical. This increase in the width of the western arch was made in order to support a further change in the form of the dome.

A glance at the plan (fig. 10) discloses that those piers in the drum of the dome, which back up thirteen of the fifteen ribs rebuilt by Trdat, are 1.0 m. longer than piers of the second dome. The windows at either side of ribs 9 and 23, which begin in the tenth century repair, are now filled. Where plaster has fallen from the filling between ribs 22 and 23, the brickwork of the blocking is revealed to be regularly bonded with rib 22. It is therefore obvious that Trdat in constructing the first pier at either end of his repair equal in length to piers of the second dome, simultaneously filled the adjoining window spaces. He then extended by 1.0 m. the radial length of the intervening piers.

Trdat's restoration thus involved a great deal more than the simple repair of the western arch, and it is possible that, as suggested earlier, he filled the former large openings in the exterior walls of the buttresses. If the workmanship displayed in the stones of the cornice is inferior to the fine craftsmanship represented in the segments of the second dome, Trdat more than compensated for any deficiency or lack of foresight by his extravagant thickening of all the elements he repaired.

Considering now the eastern part of the cornice which was rebuilt in the four-

teenth century, we find that stone 12 under rib 4 (fig. 13) does not extend to the lip of the cornice, but ends with a ragged edge .20 m. in front of the rib, and that the overhanging lip is formed by a short stone clamped to it. Though the same condition is found before rib 5 (fig. 11), the incised line carries across the truncated stones filling the intervals. The stones which carry the ribs and are marked with the line conform in surface texture and dimensions to stonework of the second dome. It might appear that the front of the cornice was injured by the collapse of the upper part of ribs 4 and 5, but the stones could have been damaged from other causes. The edges of stones along several joints between ribs 6 and 9 are spalled in a manner that could only have resulted from excessive lateral pressure. In this connection it is significant that the south edge of the dome base has been deformed .43 m. from a straight line in consequence of radial thrusts of the dome. These radial stresses tended to cause tension along the outer rim of the dome base and compression in the lip of the cornice. It is the latter force which injured the front of the stones before ribs 4 and 5. That rib 4 belongs to the dome of Isidorus the Younger is shown by an irregularity in the dome shell at the east edge of rib 4 which is accompanied by an extraordinarily crude joining between mosaic patterns of the older dome and those of the repair (fig. 14, c).

The northern limit of the line of Isidorus the Younger, at joint 89–90, is of particular interest, for it occurs directly above the ominous bulge in the northeast pendentive which has long caused observers concern for the security of the structure. Rib 30 appears to belong to the second dome, because there is no evidence that the supporting stone has been displaced and because the irregularity in the dome shell occurs at the east side of rib 30 (fig. 14, d). Stone 89 carries, in addition to the characteristic claw-tooled texture and incised line, a straight line crosswise of the cornice (fig. 17). The line appears to limit the amount of the cornice that was considered sound enough after the fourteenth century failure to incorporate in the repair. A similar transverse line occurs between ribs 5 and 6 at the end of the series of small stones in front of ribs 4 and 5 (fig. 11), but there are no continuous lines to suggest the method by which the ribs were laid out. It is certain, however, from the above evidence that the thirteen ribs, 31 through 3, are the fourteenth century work of Astras, Faciolatus, and Peralta.

This reconstruction includes two stones salvaged from the ruins of the earlier cornice, and the majority of the others appear from their varied textures to be reused. Though the joints are somewhat wider than those of the second dome, they are carefully fitted and show no dislocations of any kind. These facts give a particular significance to stone 90, the shape of which, .86 m. wide at the lip and .70 m. wide at the face of the rib, is exactly the opposite of that appropriate to its function. As its joints are undisturbed, it must have been intentionally shaped to this anomalous form to fit certain practical conditions. This makes it highly probable that the rebuilding of the cornice began with rib 4, and that stone 90, as the last to be inserted, had to be shaped to conform to the unusual conditions created by the irregular shape of the pendentive which supports it.

The underlying cause of the convexity of the cornice before ribs 30 and 31, and therefore of the shape of stone 90, is the bulge of the pendentive which occurs di-

rectly below the east end of the north segment of the second dome. This deformation marks the joining of the fourteenth century repair with the remains of the pendentive of the second dome of Isidorus. Either through accident or lack of foresight, the curve of the fourteenth century masonry had to be abruptly shortened at the joining. As this bulge is smoothly covered with mosaics which continue unbroken from the crown of the eastern arch, there can be no doubt that the startling deformation which has caused a great deal of apprehension in the past is, in actuality, man-made.

It is now possible to determine the precise amount of the existing dome that was built at specific dates by architects whose names have come down to us. The five ribs, 4 through 8, on the south, and the seven ribs, 24 through 30, on the north, belong to the second dome constructed by Isidorus the Younger between 558 and 563. The fifteen ribs, 9 through 23, were built by Trdat during his reconstruction of the western arch between 986 and 994. The thirteen ribs, 31 through 3, were constructed by the architects Astras, Faciolatus and Peralta during the restoration of the eastern arch between 1347 and 1354. The craftsmanship displayed in the stonework of the two segments of the second dome far surpasses that of both later repairs, and is superior to the workmanship represented in the original cornices at the gallery and at the springing of the great arches.

This investigation, portions of which have been summarily presented in this paper and the further publication of which is anticipated, has made it evident that Isidorus the Younger spared no pains to insure the security of his work. In sum, he was an illustrious architect in his own right and a more than worthy nephew of the elder Isidorus who shared in the design of the short-lived original dome.

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THE SHRINE OF JANUS GEMINUS IN ROME

AMONG the numerous Jani in Rome, the Janus Geminus is singled out by the shape with two doors and by the custom that these doors were closed in time of peace and open in time of war. It is mentioned by a great number of ancient writers, Horace, Ovid, Plutarch, Cassius Dio, Servius and others. Its origin is lost in obscurity, as the divergent traditions about it show. It was said to have been built by Romulus and Titus Tatius, if not even earlier, or by Numa. The tradition about the closing of the shrine is better. It was closed under Numa, then in 235 B.C., in 30 B.C. and twice besides by Augustus, and several times in the Imperial period down to the end of pagan times.[1]

The historical record is thus fairly satisfactory, less so, the archaeological one. First, no traces of the shrine have been found, although the precise location is given by many writers: close to the Curia where the Argiletum entered the Forum.[2] Secondly, Procopius describes it in Ὑπὲρ τῶν Πολέμων v, 25, pp. 19 ff.: the temple is entirely of bronze and was erected in the form of a square, but it is only large enough to cover the statue of Janus . . . of bronze and not less than five cubits high . . . and there are brazen doors fronting each face. . . . The shrine is represented, moreover, on coins struck by Nero (fig. 1).[3] Yet there is still need for archaeological discussion. From Procopius and the coins we see that the most important features are the following: it was a small, rectangular building; it had two doors opposite each other; these doors were arched and flanked by two columns; the two other walls consisted of four courses of ashlar work with a grating above; then came a frieze with scroll decoration and another one with palmettes which ran all around the building. The type differs from the normal Roman, Greek or Etruscan temple, but finds analogies in some representations from Italy. An Etruscan urn in Florence (fig. 2), in the form of a house, has the arched door, the columns, and some kind of grating above masonry; the roof is pitched and therefore different.[4] Another analogy is found on a "Hellenistic" relief in Munich which shows a shrine having an arched door with columns and a large horizontal window high up in the wall.[5] We can conclude that we are dealing with a specific Italic type as far as the window is concerned.[6] The arched door, on the other hand, is very old in Mesopotamia and likely to have been taken over *via* Syria—Phoenicia, or perhaps Carthage, not from

[1] S. B. Platner, *A Topographical Dictionary of Ancient Rome*. Completed and revised by Thomas Ashby, Oxford, 1929, pp. 278 ff.

[2] Christian Huelsen, *The Roman Forum*, Rome, 1909, pp. 138 ff.

[3] Donald F. Brown, *Temples of Rome as Coin Types*. Numismatic Notes and Monographs, 90, New York 1940, p. 12, pl. 2, nos. 6, 7.

[4] P. Ducati, *Storia dell'Arte Etrusca*, Firenze, 1927, p. 382, pl. 168, no. 426; L. Milani, *R. Museo Archeologico di Firenze*, Firenze, 1912, 2, p. 11, pl. 49; R. Delbrueck, *Die drei Tempel am Forum Holitorium in Rom*, Rom, 1903, p. 48, pl. 4; Herbig, *JDI*. 44, 1929, p. 235.

[5] Sieveking in Brunn-Bruckmann, *Denkmaeler Griech. u. Roem. Skulptur*, Text to pl. 627; Herbig, *loc. cit.*

[6] For the frequent use of windows in Italy see Herbig, *RM*. 44, 1929, pp. 260 ff.; windows in hut urns: Sundwall, *Acta Acad. Aboensis. Humaniora* 4, Åbo, 1925, pp. 55 f.; cf. Ebert, *RV*. 10, p. 89.

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FIG. 1.—ROMAN COIN SHOWING JANUS TEMPLE

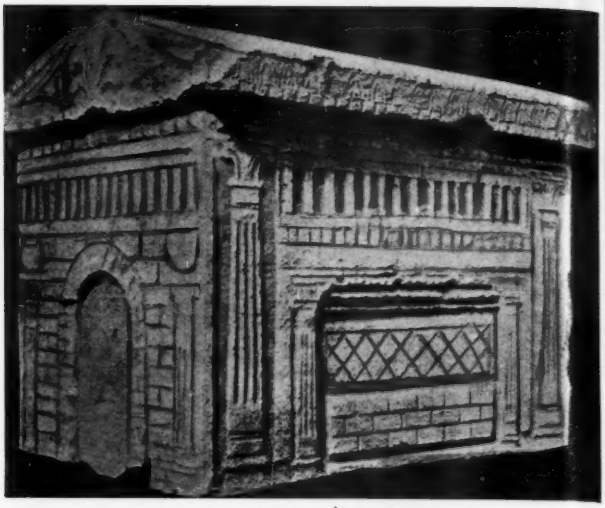

FIG. 2.—ETRUSCAN URN IN FLORENCE

FIG. 3.—FRIEZE-PLAQUES FROM CAERE. MUSEO GREGORIANO

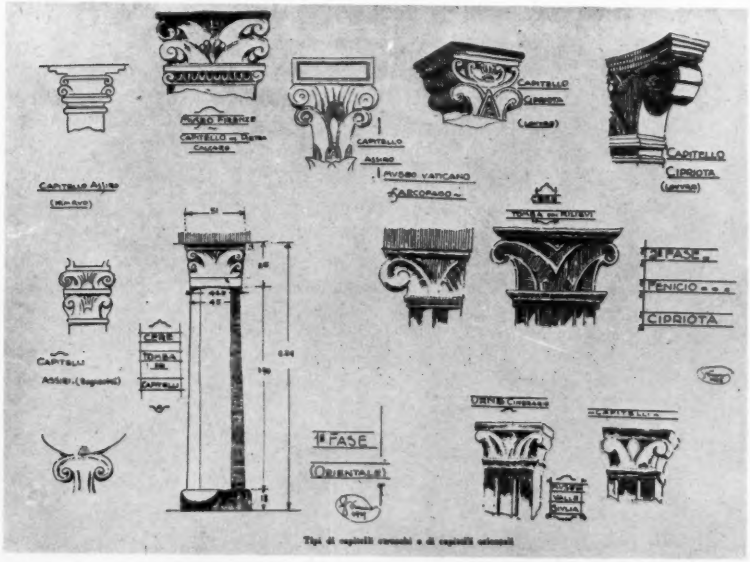

FIG. 4.— ETRUSCAN CAPITALS WITH VOLUTES

Greece.[7] Engaged columns occur in Greece, but are later there and less frequent than in the Orient, where they are sometimes connected with the door; an example datable to the ninth century B.C. comes from Megiddo.[8]

Procopius says that the shrine of Janus was of bronze, but that must mean that the interior was sheathed with bronze plaques, because the coins show ashlar work on the outside. Such construction is assumed for the temple of Athena Chalcioecus in Sparta, which Pausanias (x, 5, 11) likewise describes as being of bronze. Two other, but legendary Greek examples can be added: the third temple of Apollo at Delphi (*ibidem*) and the Megaron of Alcinous (*Od.* VII, 86). This type of decoration is not of Greek origin, but was taken over from the Near East.[9] Whether it came to Italy from Greece or was brought there by the Etruscans is impossible to tell.

The evidence for the roof is ambiguous. The existence of a large window rather suggests a roof which would be horizontal in that case. It would be another Etruscan trait, since the Etruscans introduced the horizontal roof into Italy from Anatolia.[10] Ovid (*Fast.* i, 275), on the other hand, calls the shrine a "sacellum." According to Festus,[11] *sacella dicuntur loca diis sacrcta sine tecto.* The Sacellum Cloacinae in the Forum was such an open sanctuary.[12] An Eastern analogy can once more be pointed out: Minoan shrines surrounding a sacred tree; they most likely are of Anatolian origin as are many other features of Minoan civilization, and might have come to Italy with the Etruscans.[13] There is, on the other hand, also an analogy in secular architecture, specifically the gateways of towns which consist of an open courtyard between the gates.[14] Of purely Greek origin are the decoration of the friezes, the palmettes of the upper frieze and the scroll pattern of the lower one. The shrine of Janus thus reflects the complex character of Roman civilization in which many different strains became fused, native Italic, Greek and Eastern ones. Even the artistic type of the double-faced Janus is of Near Eastern origin, although it might have been transmitted by the Greeks.[15] I do not mean to imply, however, that the religious idea was of foreign origin. We have frequent evidence in Greece that artistic forms were borrowed to represent visibly native conceptions.[16]

One more problem must be discussed. The shrine was erected very early and existed until at least the fifth century A.D., that is, considerably longer that a millen-

[7] H. Frankfort, *Iraq Excavations of the Oriental Institute 1932–33*, Chicago, 1934, p. 16; R. Delbrueck, *Hellenistische Bauten in Latium* 2, Strassburg, 1912, pp. 68, 134.

[8] Carl Watzinger, *Denkmaeler Palaestinas* 2, Leipzig, 1935, p. 34; R. Lamon and G. Shipton, *Megiddo* 1, Chicago, 1939, p. 57; cf. Crowfoot, *AJA.* 45, 1941, p. 289 f.; A. Muefid, *Stockwerkbau der Griechen und Roemer*, Berlin, 1932, p. 83 f.

[9] R. Demangel, *La Frieze Ionique*, Paris, 1933, pp. 65 ff., 81 ff., 105, 219 ff.; Marinatos, Ἐφ. 1927–28, p. 195.

[10] Gargana, *MonAnt.* 33, 1921, pp. 421 ff.

[11] *DS.* 4, 933 ff.

[12] Huelsen, *op. cit.* p. 138.

[13] M. Nilsson, *The Minoan-Mycenaean Religion*, Lund, 1927, pp. 227 ff.; A. Persson, *The Religion of Greece in Prehistoric Times*, Berkeley, 1942, pp. 60 f., 105 ff.

[14] Schultze, *Bonn. Jb.* 118, 1909, pp. 286 ff.; Schneider, *RM.* 10, 1895, p. 172 f.

[15] F. Poulsen, *Der Orient u. die fruehgriechische Kunst*, Leipzig, 1912, 2, p. 98 f.; Furlani, *Analecta* Orientalia 12, Roma, 1935, p. 161; P. Le Gentilhomme, *Rev. Num.* 1934, pp. 1 ff.

[16] Robert, *SBayerA.* Philos.-philol. u. hist. Kl. 1916, no. 2, p. 12. This likewise applies to Cook's symbolic interpretations: *Zeus* 2, Cambridge, 1925, pp. 354 ff. It is worth noticing that a shrine with the two opposite short sides widely open, but having a gabled roof, occurs in Sardinia: *ibid.* p. 141. The Ara Pacis, too, has two doors: *Capitolium* 13, 1938, p. 481.

nium. Was it never rebuilt? The Regia, likewise going back to the times of the Kings, was rebuilt in the fourth, the second and the first centuries. The temple of Castor, dedicated in 484 B.C., was restored in 117 B.C., completely rebuilt in 6 A.D., and restored once more under Domitian. The temple of Saturn was erected in the beginning of the Republic, rebuilt in 42 B.C., and restored in the fourth century A.D.[17] No rebuilding of the shrine of Janus is recorded, but we could accept this *argumentum e silentio* only if nothing militates against it. And there are such arguments. The scroll ornament of the lower frieze is not earlier than the fourth century B.C. (cf. fig. 3).[18] The objection cannot be valid that the maker of the coin was inaccurate and substituted a later and more familiar ornament for an archaic one, because the important feature of the arched door with columns leads to a late date too. The very great resemblance between the shrine and the house urn in Florence forces us to assume that both date from approximately the same time. The detailed execution of the urn shows that the arch is a true one. Such true arches likewise do not occur in Italy before the fourth century.[19] Attached columns, too, seem to be a later feature.[20] And so are the slender capitals with almost vertical volutes; archaic capitals are lower (fig. 4) and have the volutes in a more horizontal position.[21] Is it too bold to connect the late artistic features of the shrine on the coins with the recorded closing in 235 B.C. and to assume that an older shrine, damaged perhaps during the Gaulish catastrophe,[22] was reconditioned for that event? The chief structural features of the old shrine were retained, but the decorative ones were modernized.

VALENTINE MÜLLER

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[17] Brown, *MAAR.* 12, 1935, pp. 67 ff.; Platner, *op. cit.* pp. 103 f., 463 f.

[18] A. Andren, *Architectural Terracottas from Etrusco-Italic Temples*, Lund, 1939, pls. 21, 54, 92.

[19] R. Delbrueck, *Hellenistische Bauten* 2, pp. 63 ff., 84 f.; Riis, *Acta Arch.* 5, 1934, p. 85 f.; Minto, *Palladio* 3, 1939, pp. 1 ff. Earlier arched doors are constructed differently.

[20] Delbrueck, *op. cit.* p. 130.

[21] Vinaccia, *St. Etr.* 2, 1928, pp. 627 ff., pl. 48.

[22] Studniczka, *JOAI.* 6, 1902, p. 154; Gjerstad in *Dragma M. Nilsson dedicatum*, Lund, 1939, p. 217 f.

PANATHENAICA*

1. *The Burgon Panathenaic*

London B130, from Athens. Millingen *A.U.M.* 1, pls. 1–3; *MonInst.* 11, pls. 48 i and k, whence (A) Brauchitsch p. 7; A, Pfuhl, fig. 299; *CVA.* f, pl. 1, 1. A, Athena; B, synoris. On the neck: A, siren; B, owl. ΤΟΝΑΘΕΝΕΘΕΝΑΘΛΟΝ: ΕΜΙ, retrograde, in red.

I do not know any other vases that are certainly by the very moderate painter of the Burgon Panathenaic, but two smaller pieces recall it: the fragment Cambridge N113, from the lid of a lekanis-like vessel (*CVA.* ii, pl. 20, 5); and the oinochoe London B485 (Panofka *Cab. Pourtalès*, pl. 8, 3; *B.M. Guide to Greek and Roman Life*[3], p. 218: three youths in a mule-cart); compare also the prothesis plaque, part in Brussels, part in the Louvre (the Brussels part, *Vente Somzée*, pl. 4, 22; the Paris part, *Enc. phot.* ii, p. 302, b; both, *AM.* 53, Beil. 10, 31).

2. *Lydos*

When recomposing a hydria by Lydos from disjecta in Goettingen and the Cabinet des Médailles (Ἐφ. 1937, pp. 14–6), I said that the foot-race on the shoulder recalled the earliest and best Panathenaic amphorae: "we have none," I wrote, "by Lydos, but we may be pretty sure that he painted them, and some day one may turn up"

Shortly after this Rumpf attributed to Lydos (whom he identifies with Sakonides [1]) the fine Panathenaic in Halle (A, Brauchitsch, p. 10; B, Langlotz *Zeitbestimmung*, pl. 1, 1; B, *Epitymbion Swoboda*, p. 55; Rumpf *Sakonides*, pl. 8, c and pl. 27, a), which has a certain kinship with the work of Lydos, but is not, I believe, his.

On the other hand, the following fragment of a Panathenaic amphora must be by

* My thanks are due to Sir Leonard Woolley for allowing me to publish the two Panathenaic amphorae found in his excavations at Al Mina; to Mrs. Dilys Payne, Prof. Franklin P. Johnson, Mr. G. Roger Edwards for allowing me to publish fragments in their possession or care: and to Prof. H. T. Wade Gery, who discussed some historical questions with me.

The following works are quoted frequently, often with the titles abbreviated:

Brauchitsch *Die panathenäischen Preisamphoren.*
Norman Gardiner *Greek Athletic Sports and Festivals* (*GAS.*).
Norman Gardiner *Panathenaic Amphorae* (in *JHS.* 32, pp. 179–212).
Graef *Die antiken Vasen von der Akropolis zu Athen* i, pp. 109–27.
Schmidt *Archaistische Kunst.*
Speier *Zweifiguren-Gruppen* (in *RM.* 47, pp. 55–94).
Norman Gardiner *Athletics of the Ancient World* (*Athl.*).
Schefold *Untersuchungen zu den Kertscher Vasen.* [*U.*].
Robinson *Corpus Vasorum Antiquorum, Robinson Collection* i, pp. 46–9.
Smets *Groupes chronologiques des amphores panathénaïques inscrites* (in *L'Antiquité Classique* 5, pp. 87–104).
Dow *Panathenaic Amphorae from the Hellenistic Period* (in *Hesperia* 5, pp. 50–8).
Süsserott *Griechische Plastik des 4. Jahrhunderts vor Christus.*
Beazley *Attic Red-figure Vase-painters* [*ARV.*].

[1] This is one of the points in which I am not convinced by a work rich in acute and fruitful observations.

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FIG. 1.—UNIVERSITY OF CHICAGO. FRAGMENT OF A PANATHENAIC AMPHORA

Lydos. The drawing is slighter than in the hydria, but as lively, and very like. There is no saying, of course, whether the vase was inscribed or not.

Chicago, University, fr., from Athens, Acropolis. Fig. 1. B, foot-race.

3. *The Euphiletos painter*

The earliest artist who can be seen to have specialized in Panathenaic amphorae is the Euphiletos painter, as he may be called after the inscription on London B134. The Panathenaics in the following list have been put together already. Nos. 1–7 form Brauchitsch's fourth series, and were attributed by him to a single hand (pp. 159–60); the fragments nos. 9 and 10 were added by Graef; the Amsterdam vase no. 8 by myself in *JHS.* 47, p. 87, note 55.

Panathenaic amphorae

1–8 are inscribed; 9 and 10 may have been inscribed, but nothing of the inscription remains.

1. London B134, from Vulci. Gerhard *EKV.* pl. A, 5–6; Walters *BM. Cat.* ii, pl. 3; A, *JHS.* 1, pl. 8; B, *JHS.* 27, pl. 18, whence N. Gardiner *Athl.*, fig. 139; *CVA.* pl. 2, 2. A, Athena; B, athletes (pentathlon). On the shield, ΕΥΦΙΛΕΤΟΣ: ΚΑΛΟΣ.
2. Leyden XV, i, 77, from Vulci. A, *MonInst.* 10, pl. 48n, whence Pfuhl, fig. 305; B, *MonInst.* 1, pl. 22, 1b; B, *AZ.* 1881, pl. 9, 1, whence N. Gardiner *Athl.*, fig. 148; A, Holwerda *Cat.* title-page; A, Brauchitsch, p. 19. A, Athena; B, athletes (pentathlon). Restored.
3. Munich 1452 (J. 657), from Vulci. Shield and B, *MonInst.* 1, pl. 22, 2. A, Athena; B, chariot. Restored.
4. Munich 1453 (J. 655), from Vulci. A, Brauchitsch pl. 1, 2; B, Schaal *Sf.*, fig. 51. A, Athena; B, foot-race.
5. Bologna PU. 198, part, from Etruria. Pellegrini *VPU.*, p. 29; *CVA.* g, pl. 1, 1. A, Athena. Restored. The shield device is repainted. I have not seen the reverse (*CVA.* g, pl. 1, 2–3: hoplitodromoi): good parts of it must be ancient, but they are not in the same style as the obverse, and must come from a much later vase

by a different artist. The neck of the vase seems from the reproduction to be much repainted, and the mouth to be either modern or alien to the obverse.

6. New York 14. 130. 12, from Vulci. Shield and B, *MonInst.* 1, pl. 22, 6; Bröndsted pl. 3; B, Alexander p. 8, 2; B, N. Gardiner *Athl.*, fig. 89. A, Athena; B, foot-race.
7. Boston 99. 520, from Vulci. Gsell pl. 17, 2; shape, Caskey *G.*, p. 57, fig. 21. A, Athena; B, foot-race.
8. Amsterdam inv. 1897, from Vulci. *CVA.* Sch. pl. 1, 4–5. A, Athena; B, foot-race.
9. Athens Acr. 962, fr., from Athens. Graef pl. 54 (but his drawing is a contamination of 962 and 963). A, Athena.
10. Athens Acr. 963, fr., from Athens. A, Athena.

Plaques

11. Athens Acr. 2511, fr., from Athens. Graef pl. 104. Athena.
12. Athens Acr. 2517, frr., from Athens. Graef pl. 103, and p. 262, bottom. Athena.

I take the following to be inferior work of the same painter. Compare the runner on London B137 with those on Boston 99. 520.

Panathenaic amphorae (smaller, uninscribed, a different model)

13. Norwich 3. A, Athena; B, foot-race.
14. London B137, from South Italy. *CVA.* pl. 4, 1. A, Athena; B, foot-race.

Amphorae

(type A)

15. Toronto 633. Robinson and Harcum pl. 104 and p. 278. A, chariot of Herakles. B, Dionysos, Athena, and Hermes, all seated. Restored.

(type B)

16. Villa Giulia 47231, from Cervetri. A, Athena mounting chariot. B, Dionysos with maenads and satyr. EVΦIVETOϟ KAVOϟ

Small neck-amphora

17. Rhodes 11931, from Ialysos. *Cl.Rh.* 3, 265–6; *CVA.* pl. 21, 3–4. A, rider and yy.; B, frontal chariot. Cf. the neck-amphora Tarquinia RC7368, from Tarquinia (A, Herakles and Cerberus. B, man with horse, and warriors, setting out).

4. *The Nauplia vase*

Nauplia. B, Δελτ. 4, 1918, suppl. p. 81; B, *AJA.* 1938, p. 504, fig. 11. A, Athena; B, leading in the winning horse. Inscribed.

This fine vase, one of the best sixth-century Panathenaics, is by the same hand, I believe, as the amphora, type A, Würzburg 267 (Langlotz pls. 76–7). In *JHS.* 54, p. 91 and *ARV.* p. 5, no. 5, I described the Würzburg amphora as in the manner of the Andokides painter, and associated it with a smaller vase, the Würzburg mastos 391 (Langlotz pl. 109). See also *ARV.* p. 948. Another vase related to the Nauplia panathenaic is the New York hydria 14. 105. 10, no. 17 in my list of vases in the manner of the Andokides painter, *ARV.* p. 6.

I take the following Panathenaic, which is full-size, though uninscribed, to be a slighter work by the same painter:

Boston 01.8127. Gerhard *EKV.* pl. B, 9–10; shape, Caskey *G.* p. 57, fig. 20. A, Athena; B, boxers.

5. *The painter of Copenhagen 99*

Copenhagen 99, a good vase, is inscribed: nos. 2 and 3 are fragments, and it is not known whether they were inscribed or not.

1. Copenhagen 99, from Vulci. *CVA*. pl. 104. A, Athena; B, foot-race.
2. Samos, frr., from Samos. B, foot-race.
3. Athens Acr. 1054, fr., from Athens. Graef pl. 63. B, boxers.

6. *The painter of Boulogne 441*

Related to the Antimenes painter.

Panathenaic amphora (inscribed)

1. Boulogne 441, from Vulci. *MonInst*. 1, pl. 22, 5; B, *Musée* 2, p. 268, fig. 15 and p. 272, fig. 15, a, whence N. Gardiner *GAS*. p. 390; B, N. Gardiner *Athl*. fig. 162. A, Athena; B, wrestlers.

Neck-amphorae

2. Aberdeen 685. Gerhard pl. 219, 1–2. A, Achilles and Ajax playing. B, youth with horse leaving home.
3. Munich 1557 (J. 1344), from Vulci. A, Herakles and the Lion; B, Herakles with Athena and Hermes.

Compare also

Amphora (type B)

Villa Giulia M.472. Mingazzini pl. 65 and pl. 63, 8; A, phot. Arch. Fot. 7154. A. Herakles and the Lion. B, warriors leaving home.

The following inscribed Panathenaic seems to be related to Boulogne 441; I know the obverse from a photograph kindly sent me by Prof. H. R. W. Smith: I have no knowledge of the reverse.

San Simeon, Hearst. A, Athena. Device, Nike.

7. *The Leagros group*

Panathenaic amphorae

All inscribed.

1. Sparta 9887, from Sparta. *BSA*. 13, pl. 5, whence (B) N. Gardiner *GAS*. p. 456; B, *Burl. Mag*. 14, 1908, pl. at p. 65. A, Athena; B, chariot wheeling round.
2. Taranto inv. 9887, from Taranto. *Dedalo* 2, pp. 619–20, whence (B) Philippart *It*. ii, p. 57; A, Quagliati *Mus. Tar*. pl. 54, 1. A, Athena; B, chariot wheeling round.
3. New York 07. 286. 80. A, McClees p. 99 = *N.Y. Shapes* p. 5, 2; B, Alexander *Greek Athl*. p. 27, 2; B, *V. Pol*. pl. 2, 1. A, Athena; B, horse-race.

8. *The Group of Vatican G. 23*

In *R*[*accolta*] *G*[*uglielmi*] pp. 33–4 I spoke about five neck-amphorae, of the normal late black-figure shape, but decorated with figures of Athena borrowed from the Panathenaic amphora. Three of the five are very closely interconnected, and may be by one hand. With them go four Panathenaics of rather poor quality, two inscribed, two not. The inscribed ones are undersized, and the

shape is not the full archaic model, but the same later, "red-figure" version of it as in the two uninscribed.

Neck-amphorae

1. Vatican G. 23, from Vulci. *RG.* pl. 8. A, Athena; B, Athena.
2. Naples 3383, from Nola. A, phot. Sommer 11073, i, 4. A, Athena; B, Athena. Restored.
3. Louvre F284 bis. *CVA.* g, pl. 4, 6 and 9. A, Athena; B, Athena. Below, lions and boars. Restored. The rare shield-device on A, a kantharos between two crests, recurs on an inscribed Panathenaic in Erlangen, which is not, however, connected with this group.

Panathenaic amphorae

(nos. 4 and 5 inscribed, the others not)

4. Leningrad inv. 4262 (ex Mordvinov). *Izv. mat. Kult.* 3, pl. 4; B, *Ant.cl.* 5, pl. 36. A, Athena; B, foot-race. Restored. With A compare specially B of Louvre F284 bis.
5. Brussels R229, from Vulci. Brauchitsch p. 30; *CVA.* pl. 14, 1 and pl. 13, 4. A, Athena; B, foot-race. Restored.
6. Munich 1464 (J. 496), from Vulci. B, Gerhard *EKV.* pl. B, 4. A, Athena; B, boy wrestlers.
7. San Simeon, Hearst, from Rhodes. A, *Cat. Sotheby May 22, 1919,* pl. 3. A, Athena; B, discus-thrower, athlete, and trainer.

9. *The Kleophrades painter*

A list of nine Panathenaics by the Kleophrades painter is given in *ARV.* pp. 128–9. Nos. 96–99 are inscribed; nos. 100–104 are fragments and it cannot be said whether they were inscribed or not. No. 104 is *AJA.* 1926 (not 1921), p. 519.

In *ARV.* pp. 130–1, six Panathenaics, all inscribed, are said to be "related to those of the Kleophrades painter." Of these, no. 3, Louvre F277, I now feel, might be by the painter himself; nos. 1, 2, and 6, I should describe as "in his manner"; nos. 4 and 5 as "near him." No. 2, as I learn from a photograph kindly sent me by Prof. H. R. W. Smith, is now in the Hearst collection at San Simeon.

In *ARV.* p. 952, two inscribed Panathenaics are said to be connected with the six, but less close to the painter than they.

Another inscribed Panathenaic is in the manner of the painter:

Paris market (Mikas). A, Athena; B, discus-thrower, jumper, and trainer. I was told in Paris that this vase had been bought by the Museum of Kyoto, but in 1938, if my memory serves me, it was still with Mikas.

In the following inscribed Panathenaic, the obverse is very like the Kleophrades painter, the reverse not:

Louvre F276. Pottier pl. 81; *CVA.* g, pl. 1, 5–6. A, Athena; B, boxers. Restored.

10. *Sikelos*

The only prize Panathenaic with the signature of a *painter* is:

Naples inv. 112848, from Taranto. Hoppin *Bf.* p. 325; A. Pace *Arte* . . .

della Sicilia antica ii, pp. 165–6; A, small phot. Sommer 11070, foot, 2. A, Athena; B, wrestlers. Incised on the right-hand column, ϟIKEIOϟEΛPAΦϟEN.

Sikelos is a sound painter, and it ought to be possible to find red-figure vases by him: but the only other work of his I know is black-figure—fragments of two Panathenaic amphorae:

Athens Acr. 1053, fr., from Athens. Graef pl. 63. B, foot-race.

Athens Acr. 1051, fr., from Athens. Graef pl. 62. B, (flute-player?).

Inscriptions on Panathenaics are rarely incised, so it may be worth mentioning that among the fragments of Panathenaics, from Taranto, in the museum of Taranto, there is one with part of a column and [T]ONA⊕ENE⊕ENA⊕ION incised on the shaft.

11. *The Eucharides painter*

The Eucharides painter is one of those red-figure artists who had a strong black-figure side, although he was not, like his master the Nikoxenos painter, better at black-figure than at red-figure. His black-figure work includes amphorae, neck-amphorae, pelikai, and kalpides: but his favorite shape for black-figure was the Panathenaic amphora: and a list of fifteen is given in *ARV*., pp. 157–8 and 953–4. Two of them are full-sized and inscribed; a few others, now fragmentary, may have borne an inscription: but most of them are smaller, uninscribed vases. Two full-size pieces may be added to my list:

San Simeon, Hearst. B, horse-race. Known to me from a small photograph kindly sent me by Prof. H. R. W. Smith. I have no information about the obverse, and do not know if there was an inscription.

From Al Mina, frr., A, Athena. Fig. 2.

I may perhaps be allowed to say a word about the fragments from Samos, no. 70 in my list, which I know from German Institute photographs kindly sent me by Dr. Kraiker. On the reverse, the legs of an athlete moving to left, and the greater part—only head and shoulders missing—of the right-hand figure, a trainer standing to left. What I had taken for an acontion held by the athlete turns out to be the trainer's rod: so the subject is not "pancration (acontist, trainer)" as I wrote, but "(athlete, trainer)," the acontist uncertain. There are three fragments of Athenas by the Eucharides painter in Samos, and I do not know which if any of them are from the same vase as this reverse. One fragment gives neck, tress, aegis, waist of the goddess, with part of her shield; a second, helmet with most of the crest, forearm and hand with spear, and the lower part of the right-hand cock, with the abacus; a third, part of the crest and a small part of the helmet, hand with spear, head and middle of the right-hand cock. Either the second fragment or the third may belong to the first, but not both. A fourth fragment, smaller, with the head of a left-hand cock and bits of shield and spear, also seems to be by the Eucharides painter.

A small uninscribed Panathenaic in the manner of the Eucharides painter is Hamburg 1907. 510 (A, Athena; B, discus-thrower, athlete, and trainer: much restored, especially A).

I spoke above of black-figured neck-amphorae by the Eucharides painter:

none are given in *ARV.*, but the following go closely together and must be his:

New York 41. 162. 189 (ex Gallatin). *CVA.* Gall. pl. 4, 3–4. A, warrior leaving home. B, satyrs and maenad.

Würzburg 222, from Vulci. Langlotz pl. 50. A, citharode. B, Dionysos, and maenad on donkey.

Near the Eucharides painter are three kalpides with the picture on the body:

Würzburg 325, from Vulci. Gerhard pl. 33; *El.* 2, pl. 77; Langlotz pl. 89. Apollo and Muses.

Athens Acr. 740, fr., from Athens. Graef pl. 47. (W. at fountain).

Athens Acr. 741, fr., from Athens. Graef pl. 47. (Fountain).

12. *The painter of Berlin 1833*

Brauchitsch noted the resemblance between these two vases (p. 160, nos. 30 and 33), which are perhaps influenced by the late work of the Eucharides painter. The reverses are very limp.

Panathenaic amphorae (inscribed)

1. Berlin 1833, from Vulci. Gerhard *EKV.* pl. A, 7–8; detail of A, Brauchitsch p. 99; A, Schröder *Sport*, pl. 12, 1; A, Neugebauer pl. 40; B, Blümel *Sport der Hell.* p. 122. A, Athena; B, boxers. Restored.

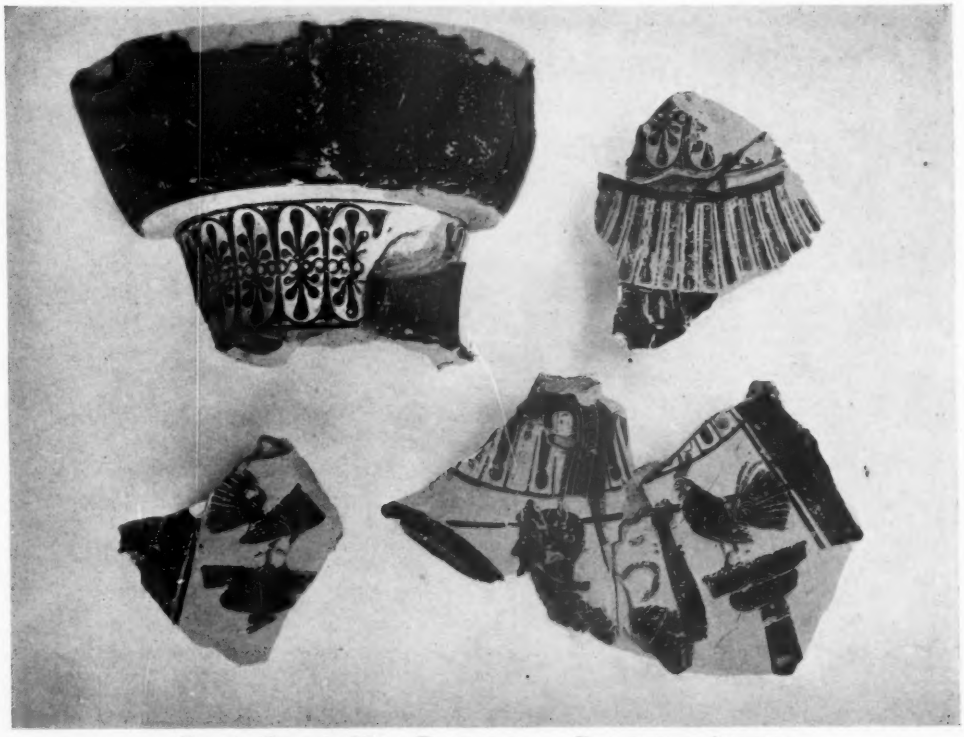

Fig. 2.—From Al Mina. Fragments of a Panathenaic Amphora

2. Munich 1455 (J. 544), from Vulci. A, and part of B, Schmidt pl. 1, 1 and pl. 6, 1. A, Athena; B, wrestlers. Restored.

Another inscribed Panathenaic is related to these:

Cab. Méd. 224, from Vulci. A, phot. Giraudon 8042; B, de Ridder, pl. 6. A, Athena; B, horse-race. Restored.

13. *Achilles painter; Berlin painter*

1. Bologna 11, from Bologna. *JHS.* 32, pl. 4; B, Pellegrini *VF.* p. 7; B, N. Gardiner *Athl.*, fig. 91; *CVA.* g, pl. 3. A, Athena; B, foot-race (boys). Inscribed.
2. Bologna 12, from Bologna. Pellegrini *VF.* pp. 8–9; *CVA.* g, pl. 2. A, Athena; B, foot-race. Inscribed.

These two Panathenaic amphorae, found together in a tomb at Bologna, were dated by Pellegrini in the second half of the fifth century. Dr. Süsserott places them "between 460 and 450," Prof. D. M. Robinson "at least as late as 450." Both amphorae are by a great red-figure and white-ground artist, the Achilles painter, in his middle or later period; and the date should be, I think, about 440.

There are three other Panathenaics by the Achilles painter:

3. Naples RC184, from Cumae. Fiorelli pl. 18, whence (detail of B) N. Gardiner, *GAS.* p. 333 and *Athl.*, fig. 132; part of A, and B, Brauchitsch pl. 1, figs. 4–5; part of A (the same as in Brauchitsch, but larger), Graef p. 116, below; B, *ML.* 22, pl. 64, 2. A, Athena; B, discus-thrower. Inscribed. Grouped with the Bologna pair by Eduard Schmidt. Compare the gorgoneion with that of Achilles' corslet on the amphora in the Vatican from which the painter takes his name (*FR.* pl. 167, 1; *ARV.* p. 634, no. 1).
4. Athens Acr. 1118, fr., from Athens. Schmidt pl. 6, 8. B, (athlete).
5. Baltimore, Robinson, from Attica. B, *CVA.* i, pl. 31, 3 and pl. 32, a. A, Athena (little remains). B, foot-race.

The reverses of fifth-century Panathenaics, apart from the use of the black-figure technique, hardly archaize at all: they are straight work in the style of the time. The ascription of these vases to the Achilles painter rests, in the first instance, on the reverses. In the conventional figure of the goddess on the obverse I doubt if it would have been possible to divine his hand: there the artist is copying, and closely, an older model. That model is the Athena of the Berlin painter's prize Panathenaics. The Achilles painter was a pupil of the Berlin painter, branching off from him near the end of the older man's career: and it is not unnatural that when he turned to Panathenaic amphorae he should go to his master for his model in that part of the decoration which had become perfectly conventional and tralaticious.

In *Vases in Poland* p. 8, I noticed the resemblance between the Athena of the Naples vase and the Berlin painter's Athenas, and explained the resemblance by supposing that the Naples Athena was a copy of a much earlier model, a model of the same time as they—a sister vase, say, of those preserved. I was then dating the Naples amphora too late, about 420; and the Berlin painter's amphorae too early: and I no longer assume a long interval between them. It is possible that when the Berlin painter retired, his Panathenaic work was taken

over by the Achilles painter; lost vases may have bridged the not very wide gap between those Panathenaics of the two artists that have come down to us: but this is uncertain.

The prize Panathenaics by the Berlin painter belong to his latest period. I have given lists of them elsewhere: I repeat the most recent list, that in *ARV.*, because there are some additions to be made: but I abbreviate, omitting most of the references to publications, since they may be found in the book.

(210) Castle Ashby, from Vulci.

(209) Goluchow, Czartoryski, 164, from Vulci.

(211) Vatican 375, from Vulci.

(212) Berlin 1832, from Nola.

Athens Acr. 1001, fr., from Athens. Graef pl. 61.

Athens Acr. 981, fr., from Athens. Graef pl. 58.

Benghazi, from near Merg. *Notizie archeologiche della Cirenaica* pp. 46–7; *Notiziario archeologico* pp. 112–3.

I have transposed Castle Ashby and Goluchow, because Castle Ashby seems the earlier. Acropolis 981 was connected with Goluchow in *Vases in Poland* p. 7, but subsequently overlooked. The Benghazi vase, which I have not seen, was compared with the rest in *Berliner Maler* p. 21 and *ARV.* p. 144, but not yet ascribed to the same hand.

In the addenda to *ARV.* p. 952, it was said that a small fragment of a prize Panathenaic, Bowdoin 30. 13. 1–2, with part of Athena's shield and six letters of the inscription seemed to be by the Berlin painter. See Fig. 3. I have not ventured to include this in my list, but point to the lettering, and to the small close-set red dots on the rim of the shield. The device, as always in the Berlin painter, is a gorgoneion: the incised line, invected, not far from the top of the fragment, on the right, belongs to the contour of the monster's hair (the crescent-shaped mark below this in the photograph is not part of the jaw, but only a fracture).

FIG. 3.—BOWDOIN COLLEGE. FRAGMENT OF A PANATHENAIC AMPHORA

Two other vases belong to the series Berlin-Achilles: the question is at what point in the series to place them:

Reggio, from Locri. A, *NS.* 1917, p. 146.

A, Athena; B, foot-race. The device seems to have been the usual gorgoneion.

Athens Acr., fr., from Athens. *Hesp.* 5, p. 265, 23. A, Athena.

The skirt of the Reggio Athena connects her with the Berlin painter, but other particulars speak for the Achilles; and what little remains of the reverse, parts of three legs, is in his style. I am therefore inclined to ascribe the vase to him. As to the small fragment in Athens, it probably goes with the Achilles painter's Athenas rather than with the others, but there is not much to judge by.

A fragment of an inscribed Panathenaic is connected with the Berlin Achilles series by the drawing of the cock; the period seems to be that of the Reggio vase, and the Reggio Athena has the same earring, the same palmette on the helmet, as the head of Athena which here serves as shield-device:

Athens Acr. 1023, fr., from Athens. Graef pl. 58. A, Athena.

14. *The Aegisthus painter*

In *V.Pol.* p. 8, I said of an inscribed Panathenaic in Naples that it seemed to be by the Aegisthus painter or near him:

Naples Stg. 693, from Ruvo. A, phot. Sommer 11037. A, Athena; B, boy boxers.

15. *The Group of Compiègne 985*

Panathenaic amphora (inscribed)

Compiègne 985, from Nola. *CVA.* pl. 4, 3–4. A, Athena; B, foot-race. Restored. The date should be not much earlier than 440.

Several fragments of Panathenaics are more or less closely connected with this. No inscriptions have been preserved, but the vases were very probably inscribed, as by this time uninscribed black-figure Panathenaics had almost ceased to be made.

1. Athens, Acr. 991, fr., from Athens. Graef pl. 61. A, Athena.
2. Athens Acr. 1124, fr., from Athens. Graef pl. 65. B, foot-race (boys). Already compared with Compiègne 985 by Mrs. Smets (*Ant.cl.* 5, p. 95).

Compare also

Athens Acr. 982, fr., from Athens. Graef pl. 58. A, Athena.

The following looks like a later exaggeration of such Athenas as those of Compiègne 985 and Athens Acr. 991:

Athens Acr. 1102, fr., from Athens. Graef pl. 64. A, Athena. The device, a red-haired gorgoneion, is the same as in Compiègne 985; a third such charge appears in another fragment, which must go, as Graef saw, with Acr. 1102:

Athens Acr. 1103, fr., from Athens. Graef pl. 64. A, Athena.

FIG. 4.—LONDON, MRS. DILYS PAYNE. FRAGMENT OF A PANATHENAIC AMPHORA

16. *The Robinson Group*

Fig. 4 reproduces a fragment, from the collection of the late Humfry Payne, which must belong to a fragmentary Panathenaic in the Robinson collection (*CVA.* i, pl. 31, 2 and pl. 33, 5): giving the upper part of the trainer on the reverse. Two other Panathenaics in the Robinson collection are in the same

FIG. 5.—FROM AL MINA. PANATHENAIC AMPHORA (A)

style, and nos. 1 and 2 had already been attributed by Robinson to a single hand.

Panathenaic amphorae

1. Baltimore, Robinson, from Attica. *CVA.* i, pl. 31, 1 and pl. 33, 1. A, Athena; B, boy wrestlers. TΩNAΘHNHΘENA[ΘΛΩN]. Restored.
2. Baltimore, Robinson, from Attica; and London, Mrs. Dilys Payne. Mrs. Payne's fr., fig. 4; other frr. of B, *CVA.* i, pl. 31, 2 and pl. 33, 5. A, Athena; B, boy wrestlers. TΩ[NAΘHNHΘENAΘΛΩN]. Restored.
3. Baltimore, Robinson, from Attica. *CVA.* i, pl. 32, 1 and pl. 33, 6. A, Athena; B, boxers. T[Ω]NAΘHNHΘENA[ΘΛΩN]. Restored.
4. From Al Mina. Figs. 5–6. A, Athena; B, chariot. T[ΩN]AΘHN[HΘE]NA[ΘΛ]ΩN.

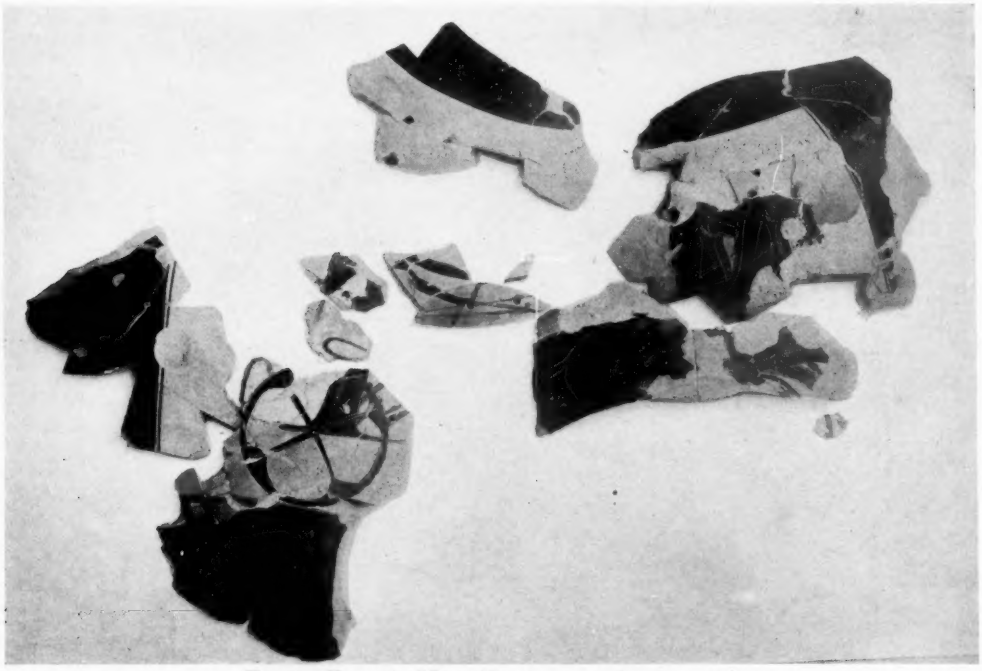

Fig. 6.—From Al Mina. Panathenaic Amphora (B)

The publication of the Mina vase is only provisional: I had no time to study the original properly before it was put away. The exact relation of the groups of fragments is uncertain, and two scraps of the right-hand cock remain to be fitted in. The close resemblance of the Athena to those of the Robinson vases, especially pl. 32, 1, will be clear from the photographs. The cocks, too, have the same long head, and their tail-feathers cut across the border.

London 1903. 2–17.1, of the Kuban group (p. 453), has the same three spots on the crest of the helmet.

Two somewhat later vases are connected, each in its way, with these:

Berne 23725, fr. A, Athena. Device an olive-wreath. TONAΘENEΘEN[AΘ↿ON]. Restored.

Leningrad inv. 17295, from Tanais. *Izv.* 1912, pl. 6; *AA.* 1912, p. 374, figs. 66–7. A, Athena; B, citharode. Device an olive-wreath. TONA[Θ]ENEΘENAΘ↿ON.

Süsserott (p. 204), following Radlov (*Izv.* p. 45), puts the Tanais vase in the middle of the fifth century, which seems to me a good deal too early. In some particulars—shape of aegis (which it shares with the rest of the Robinson group), form of the over-garment, short skirt, stars on skirt and big star on sleeve—it looks forward to the Kuban group.

The three Robinson vases probably still belong to the thirties of the fifth century; and recall artists who stand on the outskirts of the Polygnotan group or just outside it, for instance the Cassel painter. This date is somewhat earlier than those proposed by Robinson (*CVA.* i, pp. 46–8) and Süsserott (pp. 207–8). The Berne fragment, and the Leningrad vase should be a little later than the Robinson amphorae, between 430 and 425.

17. *The Kuban group*

Nos. 1–4 have been put together already, and in their order. They are E4–7 in Schmidt's list (p. 91). Süsserott (pp. 69–72 and 205–6) has shown good reason for connecting the use of the Tyrant-slayers as shield device on London B605 with the restoration of the democracy at Athens, and assigns the vase to the year 403/2. London B606, and the amphora from the Kuban, are very like London B605, and the three must be by one hand. London 1903. 2–17.1 is smaller, earlier and less florid.

I add the small fragment in my possession reproduced in fig. 7. It is 4.7 cm. high, and gives the part of Athena's drapery about the right ham. The skirt is adorned with big white stars; the thin over-garment has a broad red border edged above by a crinkled white line. This evidently goes with the three amphorae Nos. 2–4.

1. London 1903. 2–17.1, from Benghazi. B, *JHS.* 27, pl. 20, whence N. Gardiner *GAS.* p. 357 and Alexander *Greek Athl.* p. 19; A, Brauchitsch pl. 1, 6; *CVA.* f, pl. 1, 1; N. Gardiner *Athl.* fig. 12. A, Athena; B, horsemen (quintain). TΩNAΘHNHΘENAΘΛΩN.
2. Leningrad inv. 17553, from Kuban. *AA.* 1914, p. 287, figs. 108–9; *Izv. Mat. Kult.* 3, pl. 3; B, *Ant.cl.* 5, pl. 37, 2. A, Athena; B, boxers. TONAΘENEΘENAΘ↿ON.
3. London B606, from Teucheira. *Mon.Inst.* 10, pl. 48c and pl. 48h, 13, whence (A) Pfuhl fig. 306; *CVA.* f, pl. 1, 2. A, Athena; B, chariot. TONAΘENEΘENA-Θ↿ON.
4. London B605, from Teucheira. *Mon.Inst.* 10, pl. 48d and pl. 48h, 14, whence (A) Brauchitsch p. 50 and (shield-device) Richter *Sc.* fig. 570; shield-device, *AA.* 1919, p. 86, a; *CVA.* f, pl. 2, 3 and 6 and pl. 6; detail of B, Süsserott pl. 1, 3. A, Athena; B, athletes (acontist). TΩNAΘHNHΘENAΘΛΩN.
5. Oxford, Beazley, fr. Fig. 7. A, Athena.

A small fragment from South Russia, 3.5 centimeters high, also in my possession (fig. 8), gives part of the shield-rim, of the tress, of the aegis, of the sleeve.

The scales of the aegis are incised, with a short white stroke in the middle of each scale. The border of the aegis is two pairs of incised lines with a curly white line between. The red line cutting across the white is the end of the crest. The sleeve was ornamented in white. The copious white shows that the fragment is not earlier than the late fifth century—the Tanais Panathenaic is the first to use plenty of white. Red, on the other hand, is not found after the Kuban group. The curly white border-line appears in the fragment Acropolis 1105 (Graef pl. 64), and at the neck though not at the side in Athens 451 (Schmidt pl. 5, 2), both late fifth century. The scales with their white strokes are the same as the Kuban

FIG. 7.—OXFORD, BEAZLEY. FRAGMENT OF A PANATHENAIC AMPHORA

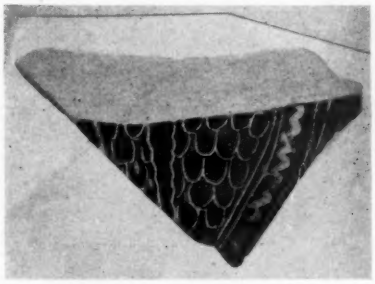

FIG. 8.—OXFORD, BEAZLEY. FRAGMENT OF A PANATHENAIC AMPHORA

vase and its two fellows London B 606 and B 605. In B 605 the red edge of the crest is continued on to the aegis, though not so far as in our fragment. The three touches of white on the sleeve might be part of a star, though they need not be. The technique is of the same brilliance as in the three vases. The fragment is probably to be placed in the neighborhood of the Kuban group, perhaps in the group itself, nearer to nos. 2–4 than to no. 1.

The following vase is akin to the Kuban group, but later, and extraordinarily deboshed. The cocks on the columns have now given place to Nikai.

Salonica inv. 8.29 (R. 100), from Olynthos. B, *AJA.* 1929, p. 70; Robinson *Olynthos* v, pl. 61 and pp. 88–9. A, Athena; B, boxers. ΤΩΝΑ[ΘΗΝΗΘΕΝΑΘΛΩΝ].

18. *The Hildesheim Group*

A pair of amphorae in Hildesheim have the same shield-device, the Tyrant-slayers, as London B605, and may belong to the same year. They were associated with London B606 and B605 by Behn: are connected with the Kuban group, but are the work of a different and less competent hand.

1. Hildesheim 1254, from Cyrenaica (probably Benghazi). *AA.* 1919, p. 79, fig. 1 and p. 86, c; Roeder p. 175, fig. 73 (one side misnumbered). A, Athena; B, chariot. ΤΩΝΑΘΗΝΕΘΗΝΑΘΛΩΝ.

2. Hildesheim 1253, from Cyrenaica (probably Benghazi). *AA.* 1919, p. 79, fig. 2 and p. 86, b. A, Athena; B, foot-race. ΤΩΝΑΘΗΝΕΘΗΝΑΘΛΩΝ.

19. *The Asteios Group*

There is a distinct resemblance between the Athenas on these two vases:

Panathenaic amphorae

Oxford 572, from Athens. *AJA.* 1911, pp. 505–6; Pfuhl figs. 300–1. A, Athena; B, wrestlers. ΤΟΝΑΘΕΝΕΘΕΝΑΘΛΩΝ. ΕΓΙΑΣΤΕΙΟΑΡΧΟΝΤΟΣ (Asteios archon 373/2 B.C.). Restored: B is almost completely modern.

Alexandria 18239, from Cyrenaica (probably Benghazi). Schefold *U.* figs. 46–7. ΦΡΑΣΙΚΛΕΙΔΗΣΑΡΧΩΝ (Phrasikleides archon 371/0 B.C.). [ΤΟ]ΝΑΘΕΝΕΘΕΝΑΘΛΟΝ.

20. *The Kittos Group*

These five vases are connected by the design of the Athena, which is the same in all, barring minor differences. The group divides into three: nos. 2 and 3 being by one hand, nos. 4 and 5 by another; while the Kittos vase, no. 1, is nearer to 2 and 3 than to 4 and 5.

Klein, as long ago as 1883 (*Meistersignaturen*[1] p. 40), noticed that an approximate date for the vase signed Kittos, in which the archon-inscription is omitted, was given by its resemblance to London B603, which bears the name of the archon Polyzelos, 367/6 B.C.; and Brauchitsch ascribed it to the same year (p. 56). De Witte thought it "a little later" than the London Polyzelos (*Annali* 1877, p. 327); Walters and Hoppin also put it later, "probably 365–350;" recent writers earlier, about 380 or not long after (Diepolder *Die attischen Grabreliefs* p. 37, "380–370 B.C.;" Schefold *U.* pp. 76–7, "beginning of the seventies, as Diepolder;" Süsserott pp. 74–6, "about 380"). I do not feel that the Kittos vase need be much earlier, if at all, than the Polyzelos amphorae. Nothing indeed could be more unlike the insufferable exquisites of the Kittos vase than the grubby professionals of London B603; but the older ideal might survive for some time side by side with the newer; and there is still a good deal of something very similar in the London Niketes of 332/1. Schmidt says cautiously that "the reverse of the Kittos vase is earlier than those of the Polyzelos amphorae, or older tradition is still active in it."

It is perhaps worth noting that the Kittos vase and the Brussels Polyzelos are the only Panathenaics (except the earliest of all, the Burgon), in which the inscriptions are punctuated[2]: the athla-inscription in the one, the archon-inscription in the other.

I

1. London B604, from Teucheira. *MonInst.* 10, pl. 48b and pl. 48g, 12, whence (A) Brauchitsch p. 55; B, *JHS.* 26, pl. 3, whence N. Gardiner *GAS.* p. 442 and *Athl.* fig. 192; Hoppin *Bf.* p. 141; *CVA.* f, pl. 2, 1 and 4; detail of B, and one of the statues of Triptolemos, Süsserott pl. 3, 3 and pl. 12, 1. A, Athena; B, pancration. ΤΟΝΑΘΕΝΕΘΕΝ:ΑΘΛΟΝ. ΚΙΤΤΟΣΕΓΟΙΗΣΕΝ.

[2] I do not count the καλος inscription on the Euphiletos vase London B134 (above, p. 442).

II

2. Brussels A1703, from Cyrenaica (probably Benghazi). A, *Bull. Mus. Roy.* 1909, p. 53; Brauchitsch pp. 53–4; *CVA.* pl. 14, 3. A, Athena; B, foot-race. ΓΟΛΥΙΗΛΟΣ: ΑΡΧΩΝ (Polyzelos archon 367/6 B.C.). ΤΟΝΑΘΕΝΕΘΕΝΑΘΛΟΝ. Restored.
3. San Simeon, Hearst, from Cyrenaica (probably Benghazi). *Cat. coll. Eddé* pl. 1, no. 6 (I have not seen this publication). A, Athena; B, foot-race. ΤΟΝΑΘΕΝΕ-ΘΕΝΑΘΛΟΝ. ΓΟΛΥΙΗΛΟΣΑΡΧΩΝ (Polyzelos archon 367/6 B.C.). Restored.

III

4. London B603, from Teucheira. *MonInst.* 10, pl. 47 and pl. 48e, 1, whence (A) Pfuhl fig. 307; *CVA.* f, pl. 2, 2 and 5; detail of B, *RM.* 47, pl. 21, 3; detail of B, and the statue of Triptolemos, Süsserott pl. 3, 4 and pl. 12, 2. A, Athena; B, wrestlers. ΤΟΝΑΘΕΝΕΘΕΝΑΘΛΟΝ. ΓΟΛΥΙΗΛΟΣΑΡΧΩΝ (Polyzelos archon 367/6 B.C.).
5. London B612, from Teucheira. Part of B, N. Gardiner *GAS.* p. 427; *CVA.* f, pl. 1, 3. A, Athena; B, boxers. Uninscribed.

21. *Bakchios*

A well known inscription found at Ephesus and published by Keil (*JdI.* 16, pp. 232 and 239) and Preuner (*JdI.* 35, pp. 70–1) records a decree of the senate and people of Ephesus to the effect that Kittos and Bakchios, sons of Bakchios, Athenians, having undertaken to provide the black pottery for the city, and the hydria for the goddess, at the price established by law, shall be citizens of Ephesus as long as they remain in the city, and their descendants also. The date of the inscriptions is before 321, but not long before; and is significant. Attic pottery by that time was in decline: fine vases were still being made about 330, but not very many; and the prospects were not good. These two brothers decide to emigrate, to leave Athens for good; and manage to secure a tolerable position in another city. By a coincidence the tombstone of a potter Bakchios, son of Amphis[tratos or the like], has been found near Athens, and is published by Wilhelm (*Beiträge* 1909, p. 40, no. 26 and fig. 18), Preuner (*JdI.* 35, pp. 69–72), Kern (*Inscriptiones Graecae* pl. 27, 5). It bears, besides the name, an elegiac poem: "Of those who blend earth, water, fire into one by art, Bakchios was judged by all Hellas first, for natural gifts; and in every contest appointed by the city he won the crown." The date is about 330. This, as Preuner says, must be Bakchios I, father of the emigrants: shortly after his death his sons decided to leave Athens.

Preuner showed that the potter Kittos whose signature is on the London Panathenaic B604 must be an earlier Kittos, Kittos I, a member of the same family as the emigrant Kittos II, for example his uncle. Recently fragments of a Panathenaic amphora with the signature of Bakchios (the First) have been discovered in the Ceramicus, but are still unpublished: A, Athena, facing left; B, horse-race. The signature is ΒΑΚΧΙΟΣΕΓΟΙΗΣΕΝ, written downwards. There is no archon-inscription, but here a small fragment of a Panathenaic, found at Lindos in Rhodes, and now in Istanbul, adds the last to this series of lucky coincidences

(fig. 9, after Blinkenberg *Lindos* pl. 149, 3149): for what remains is the first four letters of the name Bakchios, a potter, surely, and not, as Blinkenberg suggested, an athlothetes; and the first five letters of the archon's name, Hippo. . . . This can only be Hippodamas, archon in 375/4 B.C.; and gives one date at least in the career of Bakchios the First.

FIG. 9.—ISTANBUL. FRAGMENT OF A PANATHENAIC AMPHORA (AFTER BLINKENBERG, *Lindos*, PL. 149)

22. *The Charikleides Group*

Put together by Schmidt (pp. 11–13).

Panathenaic amphorae

1. Eleusis, from Eleusis. A, Schmidt pl. 7, 1. A, Athena; B, horsemen (quintain?). [X]ΑΡΙΚΛΕ[ΙΔΗ]ΣΗΡ[ΧΕΝ] (Charikleides archon 363/2 B.C.)
2. Eleusis, fr., from Eleusis. Schmidt pl. 7, 2. A, Athena. [ΤΟΝ]ΑΘΕΝ[ΕΘΕΝΑΘΛΟΝ]. Archon-inscription missing.
3. Eleusis, fr., from Eleusis. A, Schmidt pl. 7, 3. A, Athena; B, boxers. ΤΟΝ[ΑΘΕΝΕΘΕΝΑΘΛΟ]Ν. Archon-inscription missing.

In this neighborhood we must place, with Schmidt (p. 83), a small fragment with part of a signature: for as in the Charikleides group, (first) Athena already wears a wrap, (second) yet still faces left, as is shown by the position of the wrap, (third) the column is an acanthus-column:

Eleusis, fr., from Eleusis. *BSA*. 3, pl. 16, c. Athena. . . . ΟΣΕΓΟΗΣΕ[Ν?].

23. *The Nikomachos Group*

This includes most of the vases with archon-inscriptions down from the time when Athena first faces right instead of left. The figure of Athena is the same throughout the group, except for minor details. The style of the reverses varies. Further stylistic divisions can be made within the group, as will be seen later.

The name is taken from Alexandria 18238 (archon Nikomachos, 341/0 B.C.), the first fairly complete Panathenaic in which Athena faces right. She faces right as early as 348/7 B.C., but the Ceramicus vase with the name of the archon Theophilos is only a fragment, and I cannot be sure from my notes whether I should count it as belonging to our group: the helmet, at least, is much as in the Harvard Theophrastos vase. In one of the two Athens fragments with the name of the archon Themistokles (347/6 B.C.) it cannot be made out whether the goddess faced left or right, for all that remains, besides the name, is a piece of column and a small piece of the right-hand border (*BCH*. 1877, pl. 10, 1); but in the other fragment (*BCH*. 1877, pl. 10, 2) a bit of the wrap is preserved, and from the position of this it is probable that Athena faced, as might be expected, to right.

In Agora P31 (Kallimedes archon, 360/59 B.C.), Athena still faces left. The change of direction took place sometime between 359/8 B.C. and 348/7. Between these years all that is preserved is the small Chicago sherd with the name of Aristodemos, archon 352/1 B.C., where it cannot be said whether Athena faced left or right.

Panathenaic amphorae

(α: the archon's name preserved)

1. Alexandria 18238, from Cyrenaica (probably Benghazi). Schefold *U*. figs. 48–9. A, Athena; B, foot-race. T[O]NAΘENEΘEN[AΘVON]. NIKOMAXOΣAPXΩN (Nikomachos archon 341/0 B.C.).
2. Harvard 1925. 30. 124, from Capua. *AJA*. 1906, pl. 16 and pp. 386–92; *CVA*. Hoppin pl. 6; A. Richter and Milne fig. 26; B, *RM*. 47, pl. 24, 1; B, Süsserott pl. 4, 4 and pl. 6, 1–2. A, Athena; B, boxers. TONAΘENEΘENAΘVON. ΘEIOΦPAΣTOΣHPXE (Theophrastos [I], archon [340/39] B.C.).
3. Louvre MN 706, from Benghazi. *MonInst*. 10, pl. 48a and pl. 48g, 11, whence (A) Brauchitsch p. 59; *CVA*. g, pl. 5, 8–14 and pl. 6, 1; phots. Giraudon 26988–90, whence (B) *RM*. 47, pl. 25, (B) Süsserott pl. 10. A, Athena; B, victor in foot-race (the ἀνάρρησις). TΩNAΘHNHΘENAΘΛΩN. ΘEOΦPAΣTOΣAPXΩN (Theophrastos [I], archon [340/39] B.C.). Restored.
4. London B607, from Cervetri. *MonInst*. 10, pl. 47a and pl. 47e, 2, whence (A) Pfuhl fig. 308 and (statue of Athena) *JdI*. 42, p. 182, fig. 14; detail of B, Jüthner p. 83; B, N. Gardiner *GAS*. p. 407; *CVA*. f pl. 3, 1; statue of Athena, Studniczka, *Artemis* p. 93, fig. 75; detail of B, N. Gardiner *Athl*. fig. 175; B, *RM*. 47, pl. 24, 2 and pl. 23; part of B, Süsserott pl. 7, 1–2; A, phot. Mansell 3068. A, Athena; B, boxers. ΓYΘOΔHΛOΣAPXΩN (Pythodelos archon 336/5 B.C.). TONAΘENE-ΘENAΘΛON.
5. London B609, from Benghazi. *MonInst*. 10, pl. 47c and pl. 48e, 4, whence (B) N. Gardiner *GAS*. p. 280; B, Alexander *Greek Athl*. p. 8, 3; *CVA*. f pl. 4, 2; B, N. Gardiner *Athl*. fig. 93; the right-hand statue of Athena, Süsserott pl. 12, 4. A, Athena; B, foot-race. APXΩNNIKOKPATHΣ (Nikokrates archon 333/2 B.C.). TΩNAΘHNHΘENAΘΛΩN. For the drawing of the floral decoration on the neck compare London B610 (p. 460).
6. Sèvres 7230, from Cyrenaica. *MonInst*. 10, pl. 47e and pl. 48f, 6; *CVA*. pl. 17, 19–22. A, Athena; B, foot-race. [T]ΩNAΘHNHΘENAΘΛΩN. A[PXΩNNI]KHTHΣ (Niketes archon 332/1 B.C.). Restored.
7. London B611, from Teucheira. *MonInst*. 10, pl. 47f and pl. 48f, 7; *CVA*. f, pl. 4, 1. A, Athena; B, foot-race. APXΩNEYΘYKPITOΣ (Euthykritos archon 328/7 B.C.). TΩNAΘHNHΘENAΘΛΩN. Restored.
8. Louvre MNB 3223, from Benghazi. *BCH*. 1882, pl. 2; *CVA*. g, pl. 6, 2–3; *Enc. phot*. ii, pp. 308–9; phots. Giraudon. A, Athena; B, boxers. HΓHΣIAΣAPXΩN (Hegesias archon 324/3 B.C.). TΩNAΘHNHΘENAΘΛΩN.
9. Once Lemaire, from Tripoli. Lucas *Voyage* pl. 2, whence *MonInst*. 10, pl. 48f, 8. A, Athena; B, wrestlers. TΩNAΘHNHΘENAΘΛΩN. HΓHΣIAΣAPXΩN. (Hegesias archon 324/3 B.C.).
10. Cab. Méd. *CVA*. pl. 90, 2–7 and pl. 91, 1. A, Athena; B, hoplitodromoi. HΓHΣIAΣAPXΩN (Hegesias archon 324/3 B.C.). TΩNAΘHNHΘENAΘΛΩN.
11. Louvre MN 704, from Benghazi. *MonInst*. 10, pl. 47g and pl. 48g, 9; *CVA*. g, pl. 5, 1, 3, and 5; phots. Giraudon. A, Athena; B, hoplitodromoi. KHΦISOΔΩ-POΣAPXΩN (Kephisodoros archon 323/2 B.C.). TΩNAΘHNHΘENAΘΛΩN.
12. Louvre MN 705, from Benghazi. *MonInst*. 10, pl. 48 and pl. 48g, 10, whence (A)

Brauchitsch p. 69; *CVA.* g pl. 6, 4–7 and 11; phots. Giraudon. A, Athena; B, discus-thrower. ΑΡΧΙΓΓΟΣΑΡΧΩΝ (Archippos archon 321/0 B.C.). ΤΩΝΑΘΗΝΗΘΕΝΑΘΛΩΝ.

The floral decoration of the neck, by a slight shift of accent, has been counterchanged from "black-figure" to red-figure: the converse occurs in Etruscan vases of the fourth century: see *Raccolta Guglielmi* p. 91, foot.

13. Leningrad inv. 17685, frr., from Taman. *Izv.* 60, pp. 32 and 35; part, *AA.* 1913, p. 183; part, *Ant.cl.* 5, pl. 38. A, Athena. [ΑΡΧ]ΩΝΝΕΑΙΧ[ΜΟΣ] (Neaichmos archon 320/19 B.C.).

(β: the archon's name missing)

14. Cab. Méd. *CVA.* pl. 91, 2–5 and 7 (not 2–7). A, Athena; B, chariot. ΤΟΝΑΘΕΝΕΘΕΝΑΘΛΟΝ. Archon-inscription missing. On the right-hand column, not "personnage assis, chauve et imberbe," but as may be seen from pl. 91, 5, two figures, Demeter and Persephone. The flesh of Demeter is black, and black is regularly used for female flesh as well as male in column-figures. The hair is painted in white, no doubt with yellow details. Persephone is all white, and looks naked in the photograph, but doubtless had drapery, at least a himation, perhaps in white with details in yellow.

The Demeter, dressed in the peplos, seated on the cista in three-quarter view to right, looking back to left with the face three-quartered, her left hand raised with a sceptre, her right arm bent at the elbow with the hand open, is the same as in the only other Panathenaic which has Demeter and her daughter for symbol, a fragment in Eleusis (part, *AM.* 17 p. 126; part, Kourouniotis *Eleusis* p. 18, in the English translation p. 28). The Persephone is different, and somewhat recalls the attitude of the goddess on the London bell-krater F68 (Panofka *Cab. Pourtalès* pl. 16, whence *Num. Chron.* 1941, p. 2; Schefold *U.* pl. 26, 2); but much is indistinct in the photograph, and I have no note of the original.

Figures bearing some resemblance to the two goddesses of the Eleusis fragment occur in a good many reliefs, for example Athens 1016 (Svoronos pl. 183: see also Kern in *AM.* 17, pp. 125–142) and may go back to a famous cult-group. It might be expected that such a group would be reproduced more faithfully on a Panathenaic amphora, where it stands by itself, and is admitted for its own sake, than in votive reliefs, where the figures are naturally adapted to the larger composition of which they form a part; and the Eleusis fragment is very likely good authority. It would be more satisfactory, however, if the Paris vase gave the same Persephone.

The original of our two Demeters was certainly used by the painter of the "Eleusinian" pelike in Leningrad (*FR.* pl. 70, whence Pfuhl fig. 596), even to the gesture, hard to interpret, of the open hand.

The athla-inscription of the Paris vase, with its all-Attic alphabet, points, barring exceptions, to a fairly early date in the series: for the latest of our Panathenaics to bear an all-Attic athla-inscription is the Pythodelos vase London B608 of 336/5.

15. Cab. Méd. *CVA.* pl. 92 and pl. 91, 6. A, Athena; B, wrestlers. ΤΩΝΑΘΗΝΗΘ[ΕΝΑΘΛΩΝ].

The column-figures, as in the Pythodelos vase London B608, are Triptolemos, and Nike holding an aphlaston; and the two Triptolemoses are very like; Süsserott, therefore (p. 209), assigns the vase to the same year, 336/5.

16. Leningrad, from Kerch. *CR.* 1876, pl. 1, 1–3, whence (B) N. Gardiner *GAS.* p. 283; *Ant.cl.* 5, pls. 39–40; the statue of Aphrodite, *JdI.* 52, p. 37 fig. 4. A, Athena; B, foot-race. ΑΡΧΩ[Ν . . . .]. ΤΩΝΑΘΗΝΗΘΕΝΑΘΛΩΝ.

Certain divisions may be made within the Nikomachos group on grounds of style:

(a) Nos. 1 and 2, the Alexandria Nikomachos and the Harvard Theophrastos, go together: how closely it is hard to say from the reproductions.

(b) No. 5, the London Nikokrates B609; no. 6, the Sèvres Niketes; and no. 7, the London Euthykritos B611: form a group.

(c) Another group consists of nos. 8–10, the three Hegesias vases (Louvre, Lemaire, and Cab. Méd.); no. 11, the Louvre Kephisodoros; and no. 12, the Louvre Archippos.

(d) No. 16, the Leningrad amphora from Kerch with the name of the archon missing, goes with no. 13, the Neaichmos fragments from Taman, also in Leningrad: see below.

The following may belong to the Nikomachos group, but I cannot tell from my scanty notes: according to Süsserott (p. 89, note 206) it is "from the same workshop as" the Pythodelos vase London B607, with which it shares the unusual decoration of the neck, an olive-wreath.

Berlin inv. 3981, from Cyrenaica. B, *Monatshefte Kunstw.* 1918, pl. 13; B, Schröder *Sport* pl. 12, b. A, Athena; B, foot-race. [ΤΩΝΑΘΕ]ΝΕΘΕΝΑΘΛΩΝ. ΕΥΘΥΚΡΙΤΟΣΑΡΧΩΝ (Euthykritos archon 328/7 B.C.).

Before discussing some chronological questions raised by the Nikomachos group, we should say a word about three vases which are contemporary with it, related to it, but not of it:

24. *London B610*

In one vase the Athena is of the same general type as in the Nikomachos group, but in many details departs a good deal from the norm. The style of the reverse is also unusual: happily: see p. 455. The floral decoration on the neck of the vase is almost the same as in London B609 (archon Nikokrates, 333/2 B.C.).

London B610, from Capua. *MonInst.* 10, pl. 47d and pl. 48f, 5; Walters *HAP.* pl. 34; B, *JHS.* 26, pl. 4, whence N. Gardiner *GAS.* p. 443 and N. Gardiner *Athl.* fig. 191; *CVA.* f pl. 4, 3; B, Süsserott pl. 6, 3 and pl. 7, 3–4; A, phot. Mansell 3067. A, Athena; B, pancration. ΝΙΚΗΤΗΣΑΡΧΩΝ (Niketes archon 332/1 B.C.). ΤΩΝΑΘΗΝΗΘΕΝΑΘΛΩΝ.

25. *The Hobble Group*

Two vases grouped by Brauchitsch, (pp. 62–3) and Süsserott (pp. 82–3), have a special type of Athena, with feet close together and "hobble skirt."

In general character London B608 is not very far from London B607, which is of the same year, comes from the same dealer, Castellani, was found on the same site, Cervetri (and was mended, in antiquity, by the same method of riveting, perhaps by the same repairer). The painter is not the same. I have little note of Munich inv. 7767.

1. London B608, from Cervetri. *MonInst.* 10, pl. 47b and pl. 48e, 3, whence (A) Pfuhl fig. 309, (A) Swindler fig. 347, (B) N. Gardiner *GAS.* p. 290; *CVA.* f pl. 3, 2; the statue of Nike, Studniczka, *Artemis* p. 93, fig. 76; the statue of Triptolemos, Süsserott pl. 12, 3; A, phot. Mansell 3066. A, Athena; B, hoplitodromoi. ΤΟΝΑΘΕΝΕΘΕΝΑΘΛΟΝ. ΓΥΘΟΔΗΛΟΣΝΡΧΕΝ (Pythodelos archon 336/5 B.C.).
2. Munich inv. 7767, from Athens. A, Athena; B, horsemen (quintain?). ΓΥ[Θ]ΟΔΗ-[ΛΟΣ . . .] (Pythodelos archon 336/5 B.C.).

We now return to the Nikomachos group, and deal first with no. 12, the Louvre Archippos; then with no. 16, the Leningrad vase from Kerch; and lastly, with no. 3, the Louvre Theophrastos.

(1) *The Archippos vase (no. 12)*

An Archippos was archon in 321/0 B.C., and another in 318/7. Süsserott prefers the later date, on stylistic grounds (p. 90). I confess I am not one of those who can tell the art of 317 from the art of 320: but it has often been observed that not one of our Panathenaic amphorae bears the name of an archon who held office in the third year of an Olympiad—a Great Panathenaea year: and 318/7 is such a year. The figures are now: first year of an Olympiad, nineteen vases; second year, ten; third year, none; fourth year, four; first or fourth, one. This may be chance, as Süsserott holds: but it will be time enough to reconsider the rule when it is broken by a new find. The explanation may be that given by Norman Gardiner in an excellent article (*JHS.* 32, pp. 179–93) to which Süsserott does not refer.

(2) *The amphora from Kerch (no. 16)*

The archon's name is missing on No. 16, the Leningrad amphora from Kerch, and the date is disputed. In *CVA.* Oxford, p. 95, I said that it was in the same style as the Taman fragments with the name of Neaichmos, archon 320/19, our no. 13; Schefold dated it in the twenties of the fourth century (*U.* p. 109, note 29), and subsequently in 319/8 B.C. (*JdI.* 52, p. 37). Schmidt, on the other hand, placed it in the third century (pp. 84–5), and Süsserott more precisely in the year 287/6 (pp. 208–9).

The shape of the vase (*Ant.cl.* 5, pls. 39–40) is more exaggerated than in the other members of the Nikomachos group, but that step may have been taken in the late fourth century and need not have been reserved for a Hellenistic potter. The style of the drawing, front and back, has nothing, as far as I can see, of the third century. The helmet is not, as has been claimed, a forerunner of the frightful Corinthian helmet seen on the Hellenistic amphora, from the Vogell

collection, in Berlin (*Sg. Vogell* pl. 4, 5 and p. 14). As to the movement of the runners, and their relation to the picture-plane, these are at the same stage, for essentials, as in the Berlin Euthykritos of 328/7 (Schröder *Sport* pl. 12, b). It is hard to believe that the vase is much later than the fragments with the name of Neaichmos. The helmet has many unusual features, and they nearly all recur in the Neaichmos fragments: the very large cheekpiece, the spiral half hidden by it, the spiral on the nape-piece, the pattern of the sphekiskos. The Aphrodite with Eros [3] on the left-hand column is the same in both vases, drawing as well as subject. (The right-hand column-figure is missing in the Taman fragments). The floral decoration on the neck of the Kerch vase is said by Schmidt to be curiously corrupt and therefore late: but it is exactly the same as in the fragments from Taman.

I have not seen the Taman fragments, but I am assuming that the two, the inscribed one, and the one with figures, come from the same vase. Even if they should prove to be from two Panathenaics, not one, surely the figures are in the same general style as red-figured works of the late Kerch period, such as the calyx-kraters Athens 12544 (Schefold *Kertscher Vasen* pl. 23, b), 12545 (*ibid.* pl. 23, a), 12452 (Schefold *U.* pl. 48, 1), or Boston (*ibid.* pl. 48, 2); and no one would place these in the third century. But Shkorpil, who found the fragments in the débris of a tumulus on Mount Sellinskaya, stated that they were from one vase; and so did Farmakovski, who was well acquainted with vases: and it has never been denied. The date, then, of the Taman fragments is 320/19: the Kerch vase is so like them that it cannot be much later; and considering the remarkable similarity of the column figures, it may even belong to the same year.

Fragments of two other Neaichmos vases have been found, but bear hardly anything beyond part of the inscription:—

Baltimore, Robinson, fr., from Athens. *CVA.* i, pl. 33, 2.

Leningrad, fr., from Kerch (Mount Mithridates). *AA.* 1913, p. 189. (I suppose there are traces of a chi?).

(3) *The Louvre Theophrastos vase* (*no. 3*)

Recent writers—Miss Speier in *RM.* 47, pp. 63–6, Schefold (*U.* pp. 109 and 111–2, and *JdI.* 52, p. 37), Süsserott (pp. 68 and 90–2) have separated the two Theophrastos vases, taking the archon of the Harvard vase (our no. 2) to be Theophrastos I (340/39 B.C.) and the archon of the Paris vase (our no. 3) to be Theophrastos II (313/2 B.C.). The dating of the Harvard vase is confirmed by its resemblance to the amphora in Alexandria with the name of the archon Nikomachos (341/40 B.C.).

As to the Paris vase, the arguments that have been used for assigning it to the second Theophrastos rather than the first are not all very strong, and some of them only go to prove that the two Theophrastos vases are not by the same

[3] It is hard to believe, with Schefold (*JdI.* 52, p. 37), that the painter means his group for the Eirene with Ploutos of Kephisodotos, which stood in a public place at Athens, was known to everybody, and is accurately reproduced on a fragment of a Panathenaic in Eleusis (*JdI.* 52, p. 37, fig. 3; Süsserott pl. 11, 3).

hand, which is not disputed. There is nothing to be got from the shape. The single curve of the mouth in the Paris vase is not a mark of lateness, for it is as old as Kittos; so is the pattern on the neck. In the Paris Athena there are even early features. Such is, first, the use of incised lines, in addition to the white border, at the lower edge of chiton and wrap. In most Panathenaics of the Nikomachos group or contemporary with it the white border is held to suffice, and the only vases that have the incised line are London B607 of 336/5 B.C. and London B610 of 332/1 B.C. Logically the use of the incised edge is original, and it duly appears in the Charikleides group, of 363/2 and neighboring years, and in all vases earlier than that. Secondly, a plain line or lines for the lower part of the shield-rim inside appears to be the older rendering: from the Sèvres Niketes, 332/1 B.C., down to the Louvre Archippos, 321/0 B.C., it is usually replaced by a pair of lines with hatching between: true that this is also found in London B607 of 336/5 B.C. Thirdly, the line of arcs on the crest, representing the top of the sphekiskos, occurs several times between 348/7 (the Ceramicus Theophilos) and 332/1 (the two Niketes vases), but not in any of the later Panathenaics that have come down to us.

The arguments for the later date are reduced to two. First the use of the full Ionic alphabet, ΗΩΛ, for the athla inscription. The earliest instance of this among our archon-Panathenaics is in the London Nikokrates of 333/2. But the argument is not decisive: these inscriptions were not applied with a rubber stamp; and if Ε reappears, instead of Η, in 328/7 (Berlin Euthykritos), if Λ was often used earlier, and if all three letters occur together, before the archon series begins, in the Kuban group, then some latitude was allowed or assumed, and the full Ionic alphabet may have been used in 340/39.

There remains the argument from the style of the reverse, and it will probably be admitted that the style of the reverse seems to indicate a period later than 339. Unfortunately the inscription precludes a compromise between the two dates: if 340/39 is wrong, then 313/2 is right. And here another difficulty arises. The Athena of the Neaichmos fragments, so far as preserved, shows what must be called a later stage of development than the Athena of the Paris Theophrastos; and if neither vase were inscribed, or only one of them, I believe we should count the Neaichmos the later: but Neaichmos was archon in 320/19, and Theophrastos II in 313/2.

We have said nothing hitherto about the "symbols," the column-figures, on the Paris vase. They are exactly the same as in the Harvard vase, both persons and attitudes: on the left, Athena, in profile, holding out a stylis; on the right, Zeus, frontal, with a sceptre in his right hand, and a small Nike flying towards him. Now Athena holding a stylis appears as symbol on one of the Pythodelos amphorae, London B607, but there she holds an aphlaston as well, with an owl perched on it, and in other respects also differs widely from the Paris figure. Zeus does not occur elsewhere, either with Nike or without. As far as can be judged from dated pieces, Panathenaics with the same symbols regularly belong to the same year; and if in two years the subject is the same, there is almost always a greater difference in the treatment of the subject than there is between

the symbols of the Harvard and Paris vases. The nearest approach to repetition from one year to another is, first, in the Triptolemos which occurs both in the Polyzelos year, 367/6, and in the year of Pythodelos,[4] 336/5: but whereas in the former year both column-figures are Triptolemos, in the latter only one is Triptolemos and the other is once Nike, once Athena. Secondly, in the commonplace Nikai on which the painters evidently fell back when they had no specific orders: but these stand in very different case from the carefully chosen couple on the Paris Theophrastos.

If the Harvard and Paris vases are of the same year, the identity of the symbols requires no explanation. If they are not, then the Panathenaics of the later year must have borrowed their symbols from the Panathenaics of the earlier; to put it more concretely, Theophrastos II, or other officials with his consent, must have chosen these symbols because they had been used on Panathenaics in the year of Theophrastos I. This would be understandable if the second Theophrastos was the same man as the first; and Miss Speier thinks that he may have been (*RM.* 47, p. 64): but considering the method of appointing archons in the fourth century, purely by lot, it is highly improbable that any archon ever served twice.

The second Theophrastos may have been related to the first: if so, the re-use of the symbols would be more natural than if there was no relationship. In either case, it seems a curious piece of antiquarianism: perhaps conceivable, however, in the later part of the fourth century, when antiquarian research had reached a pretty high level.

If then the Paris vase is of 313/2, we have to contrive some such hypothesis as the following. Instructions were given to the potters that they should reintroduce the same symbols as had been used in the archonship of the earlier Theophrastos twenty-seven years before. The contract for the vases, or for the batch of them to which the Paris vase belongs, was given to a conservative potter who for shape and for the figure of the goddess still adhered or now reverted to the "Nicomachean" tradition in all its severity, even after the innovations seen in the Neaichman vases of seven years before; perhaps he took as his model, for shape and Athena as well as symbols, an actual vase of the year 340/39.

It would certainly be simpler if the Paris vase could be assigned to the year 340/39; and when I think of the Mausoleum, of the differences from one part of the Amazonomachy to another, in particular of the contrast between slabs 1020–1 and the rest, those slabs which seem to represent a more advanced stage of development, yet cannot be more than a few years later if at all; remember also that the Mausoleum belongs to the middle of the fourth century, to the years in the neighborhood of 350; then I begin to wonder if 340/39 is not a

[4] The Triptolemos of the Kittos vase, of the Polyzelos year, and of the Pythodelos vase London B607 doubtless goes back to a statue of Triptolemos in an important place: see Pringsheim *Arch. Beiträge zur Geschichte des eleusinischen Kults*, pp. 95–7, (where 336 B.C. is to be read for 366). The Triptolemos of the Pythodelos vase London B608 may represent the same statue seen from a different point of view; with it goes the Triptolemos Cab. Méd. *CVA.* pl. 91, 6, see p. 459–60.

possible date for the reverse of the Paris Theophrastos. The drawing is unattractive and almost caricatural; but it is not always the best artists who are readiest to offer their version of a new mode in art.

I believe that I shall not be blamed, if despite the weight of recent opinion, after giving what I think will be considered a fair statement of the arguments on both hands, I tentatively restore the Paris vase to the place where Brauchitsch and Eduard Schmidt set it, side by side with the Harvard Theophrastos in the year 340/39.

One of the advantages will be that the Neaichman fragments of 320/19, and the vase from Kerch that goes with them, will now stand at the end of our archon series, where one would expect to find them, and not between Archippos and Theophrastos II, where they had all the semblance of an interpolation. After Archippos, no more archon-vases are preserved except a couple of small fragments, one from the Agora with the name of Demok[leides], archon in 316/5, and one in Athens with the name of Polemon, archon in 312/1 (*AJA.* 1896, p. 332). Then follow, at exactly what interval is uncertain, a few sherds with the names of, first, agonothetai, later tamiai, and one or two other Hellenistic vases and fragments: these have been dealt with recently in a very important article by Sterling Dow (*Hesp.* 5, pp. 50–8). All these are very different from the Kerch Panathenaic (our no. 16): but we are badly off for reasonably complete vases from the end of the fourth century or the early third; and it may be that a new find will destroy my arrangement.

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ARCHAEOLOGICAL NEWS AND DISCUSSIONS

NOTES ON RECENT ARCHAEOLOGICAL EXCAVATIONS SUMMARIES OF ORIGINAL ARTICLES CHIEFLY IN CURRENT PUBLICATIONS

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NECROLOGY

Edith Hall Dohan, Curator of the Mediterranean section of the University Museum, Philadelphia, and Book Review Editor of this JOURNAL, died suddenly on July 14, 1943, at the age of 65, in her office at the Museum. She had seemed to be in excellent health, and her death came as a shock to her many devoted friends and colleagues. She was born in Woodstock, Conn., was graduated from Smith College in 1899, and obtained a Ph.D. degree from Bryn Mawr College in 1908. From 1903 to 1905 she was Agnes Hoppin Fellow at the American School in Athens, Greece, and there began a distinguished career. In 1904 she carried on excavations with Harriet Boyd Hawes at Gournia, Crete. Her results were published in Mrs. Hawes' book on *Gournia, Vasiliki, and other Prehistoric Sites on the Isthmus of Hierapetra* (1908) and in several monographs. She was perhaps best known for her own dig at Vrokastro, a sub-Minoan site, which was occupied in Geometric and later times (*Excavations at Vrokastro in Eastern Crete* [Univ. of Penna. Mus. Anthropolog. Public.], 1914). Her excellent doctor's dissertation on *The Decorative Art of Crete in the Bronze Age* appeared in 1907.

On her return from Greece she taught at Mount Holyoke College and in 1911 joined the staff of the University Museum, Philadelphia, where she was first assistant curator, then associate curator, and finally curator of the Mediterranean section in 1942. In 1923–24, 1926–27 and 1929–30 she was Lecturer at Bryn Mawr College and from 1932 until the time of her death the very efficient editor of the Book Reviews of this JOURNAL.

Her many important contributions in the fields of Minoan, Greek, Etruscan, and Roman archaeology have been published in various periodicals—*The American Journal of Archaeology, The Transactions of the University of Pennsylvania, The Museum Journal* of the University Museum, *Studi Etruschi*, etc. During the last years her major interest was centered in the Italic and Etruscan civilizations. Her studies resulted in two great achievements—an orderly classification of the Italic tomb groups in the University Museum, and a book entitled *Italic Tomb Groups* (1942), published by the University Museum, with a grant from the American Philosophical Society. This volume was to have been followed by another on the Etruscan bucchero ware in the Museum.

She married Joseph M. Dohan of Philadelphia in 1915 and had two children—David, 2nd Lieut. in the American armed forces, and Katharine, the wife of the noted British classicist Denys Page, of Oxford, England. She will long be remembered both for her own scholarly work and for her ready help and kindness to her colleagues, and especially to young students. G.M.A.R. M. H. S.

George Edwin Howes, Garfield Professor of Ancient Languages, *emeritus*, at Williams College, died in December, 1942. He had been at Williams from 1905 till his retirement in 1934, and from 1920 to 1930 had served as Dean of the College. A graduate of Harvard in the Class of 1886, he received his A.M. in 1890 and the degree of Ph.D. in 1895 from that University. From 1895 till 1905 he was Professor of Greek at the University of Vermont, except for the academic year 1902–03, when he was Annual Professor at the American School at Athens. During the First World War, he served in the Fuel Administration in Washington.

Professor Howes always maintained a deep interest in the work of the Archaeological Institute of America, being for many years an officer of its Boston Society, and in the School at Athens. He was a Past President (1918–1919) of the Classical Association of New England, of which he was Secretary-Treasurer for many years, before his elevation to its Presidency. Many generations of Williams men, who continued their Classical Studies at the School at Athens, will remember the sound scholarship and wide interests of Professor Howes with great appreciation. S. B. L.

N. I. Repnikov.—In *Kratkie Soobshcheniia* No. 9, pp. 121–123 is reported the death of the ranking

student of Crimean archaeology, Nikolai Ivanovich Repnikov (1882–1940). He was a student of A. A. Spitsyn and A. L. Berthier de Lagarde, and is best known by his *Pamiatniki Gerakliiskogo Poluostrova* [Monuments of the Heraklean Peninsula]. However, he died before completing his "Archaeological Monuments of the southwestern Plateau of the Crimea." As a field archaeologist Repnikov excavated in the Crimea, where he discovered the famous Gothic burials at Suuk Su (1904), the basilica at Parthenite, and the well-known cave cities at Eski Kermen and other sites. During the last few years he excavated on the Heraklean Peninsula (1928), Theodosia (1934), Belbek Valley (1936), Inkerman (1937) and in the Bakhchisarai Region (1940). He was the author of forty-six archaeological monographs.

GENERAL AND MISCELLANEOUS

Anniversary Address.—In *AJ.* xxii, 1942, pp. 157–166, appears the address made by A. W. Clapham, president of the Society of Antiquaries at the 1942 annual meeting. The address is noteworthy not only because of its indication of a determination to keep the Society as a going concern during the war, but also in its outline of possible fields of activity during and after the war.

Objects in French Museums.—*The New Pallas* v, 1941, p. 26, gives an abstract of a statement issued by the German authorities in charge of the Louvre. According to this statement, the bulk of the collections were at that time in unoccupied France. Antiquities were said to be in the Chateau of Chambord, the Egyptian collection in the Chateau de Courtalain, and the contents of the Museum at Rouen at Carrouges near Alençon. All are undamaged. It is also stated that the Nike of Samothrace, the Aphrodite of Melos, the reliefs from the Parthenon, and the Mona Lisa were taken to unoccupied territory before the offensive. The disposition of other works of art, not of an archaeological nature, is also stated.

Cyrenaica.—According to *The New Pallas* v, 1941, p. 73, the Italian authorities allege that during the fighting in North Africa, part of the collections of objects found in excavations in that region were destroyed.

Almaden, Spain.—*The New Pallas* v, 1941, p. 121, tells of the discovery of rock paintings at this place representing hunting scenes with men and deer. They resemble in style and technique the pictures found by Breuil near La Solana. About forty figures have been identified to date.

Ostrowiec, Poland.—*The New Pallas* vi, 1942, p. 87, announces the discovery at this place, in the district of Radom, of a prehistoric site, containing remains of six different civilizations from the Late Stone Age up to the period of the Vandals.

Isle of Wight.—In *AJ.* xxii, 1942, pp. 198–201, G. A. Sherwin describes a hoard of three spear heads, three daggers and seven flanged axes, all of bronze, and all of Arreton Down type, found at Totland in 1942. The hoard is now in the Carisbrooke Castle Museum.

Heiligenhafen.—*The New Pallas* v, 1941, p. 46, reports that at this place a very remarkable tomb, unique of its kind in Schleswig-Holstein, dating in the second or third century, has been discovered. It contains a skeleton with rich offerings, including golden ornaments and a gold coin, probably of the time of Antoninus Pius, pottery, and wooden utensils with brass mountings, also pieces of a game of draughts, and a small die. This tomb will be reconstructed in the Museum of Prehistoric Antiquities at Kiel.

EGYPT

Statue of Ramesses II.—Ludlow Bull, in *BMMA.* n.s. i, 1943, pp. 219–221 (2 figs.) publishes a fragmentary statue of this king, in grey granite, recently acquired by the Metropolitan Museum. It is of a type of which few examples are known, and in its original state was a very fine example of royal sculpture of the Nineteenth Dynasty. The figure is standing, with the left leg advanced—the body is bare, except for a skirt of finely pleated linen, supported by a girdle, the buckle of which is engraved with the king's "throne name." In his left hand he holds a ceremonial staff, likewise inscribed with the "throne name." The plinth at the back of the statue is also provided with a similar inscription. In connection with this new acquisition, a head of Ramesses, acquired in 1934, is published, and an estimate of his character and ability is given. The writer believes his reputation to be "somewhat greater than he deserved," doubtless owing to the length of his reign (1292–1225 B.C.) and his activity as a builder.

Egyptian Sculpture of the Ramessid Period.—In *The Journal of the Walters Art Gallery* v, 1942, pp. 9–17, Georg Steindorff discusses briefly two Egyptian statues, one in the Walters Art Gallery, the other in the collection of the Reverend Theodore Pitcairn in Bryn Athyn, Pennsylvania.

The statues, which are almost exact duplicates, represent a woman seated stiffly on a straight-back chair, her right hand resting flat on her knee, her left holding a sistrum upright in front of her breast. She is clad in the elaborate linen garments of the Eighteenth Dynasty. The hieroglyphs on the central panel of her skirt identify her as Enehey, "Little Sycamore." Since this name was not uncommon, however, her exact identity remains a mystery. The statues are of the same type as three in the museum at Leyden which were acquired from the d'Anastasy Collection in Alexandria and were probably from the necropolis of Memphis. It is not unlikely that the Walters and Pitcairn pieces have a similar provenance. All of the statues are representative of the development of mass production in sculpture to fill the demands for tomb figures in the cult of the dead. Clothes and accessories are detailed and accurate, but there is little attempt made to portray individual personality.

PALESTINE AND SYRIA

Palestine.—In *PEQ.* Jan.–April, 1943, M. E. KIRK has an article entitled "An Outline of the Cultural History of Palestine down to Roman Times." In the accepted sense history only commences with the written word in the form of inscriptions and documents, but the history of civilization and culture is read rather by their tangible results. The scientific excavations of Gezer, Beth-Shan, Lachish, Samaria, Megiddo, Gaza, Beth-Pelet, Ophel, Jericho, Ta'anach, Beit Jibrim, and other places have made clear the past, at least in its major outlines. Like other countries Palestine went through the Stone, the Bronze, and finally the Iron Age; the assignment of the earliest use of bronze in Palestine is purely tentative. In all cases the various stages overlap, and there is no hard and fast line of demarcation. There has been found nothing approaching a characteristic Palestinian art or architecture. The inhabitants of Palestine do not appear to have made a single contribution of any kind towards material civilization. Nothing is known of the inhabitants during the earliest part of the Palaeolithic Age. Eoliths have been picked up in Moab and Ammon, but it is hard to distinguish such stones from naturally fractured ones. Neanderthal man, however, with his Mousterian culture, appeared in Palestine at a very remote date. He may have been there some time before his advent in Europe, and his flint axes have been found in caves of Phoenicia, Mt. Carmel, on the Maritime Plain, on the summit of the Judaean mountains, in the valleys of Samaria, and on the uplands of Moab. The Mousterian culture shows distinct affinities with that of eastern Europe and Africa. The Neanderthal man of Palestine appears to have been farther developed than his European counterpart.

It seems that in Palestine for a considerable time the Aurignacians and the Neanderthals were living side by side. With the Aurignacians we meet an entire change in the technique of flint working; now flakes were struck from a flint core and the edges were trimmed by a method of pressure flaking. Then it became possible to fit knives, arrow-heads, saws, lance-heads, and harpoons into bone and wooden handles. The Magdalenian phase is poorly represented, and no polychrome paintings such as occur in the caves of the Pyrenees have yet been found. There is no indication in Palestine of the Solutrian phase with its exquisitely worked laurel leaf flints. These early peoples lived mainly in caves, and they knew nothing of agriculture and of the domestication of animals. Clothing was made of skins, and ornaments of various kinds were worn. As a protection against malignant forces magic was developed. It is possible that by Magdalenian times loosely united tribal units had acquired totem animals, in whose shape the tribal deity was represented. The bull, the cow, and the serpent seem to be among the most ancient of the sacred totem creatures.

The last phase of the Palaeolithic Age is characterized in Palestine, as elsewhere, by the appearance of vast numbers of microliths. Although agriculture was entirely unknown to the Neolithic people of Europe, the Natufians, who belong to the same phase, understood the nutritive value of wild wheat, barley, and millet. In no other country has a Mesolithic culture left any signs of agricultural activity. Pottery was unknown, and gourds and bags of leather were used for storing and transporting food and liquids. There is no evidence that anything was known of pressing grapes and olives, but stone mortars were used for grinding grain, and basins cut in the floor of caves may have been used for storing grain. Perhaps there were sacred meals or sacrificial rites in connection with burials. The Palaeolithic Age closed upwards of 10,000 years ago, and by that time man had created the germs of a social order. Though still a half-nomadic hunting creature, it

is already apparent that man had discovered the first principles of agricultural life.

With the advent of the Neolithic Age civilization took a tremendous step forward. In Palestine the first domesticated animal was the forest wild pig. Once men could sow and reap and store grain for future needs, a settled life became possible. The quality of tools and weapons improved, and the polished stone technique is the hall mark of the neolithic culture everywhere. Who these people were, we do not know. Skeletal remains show them to have been short, muscular individuals, about five and one-half feet high, with slender, straight limbs. Whether they were indigenous to Palestine is not known, but they certainly were not Semites. They lived in the innumerable caves that honeycomb the hills, and accordingly ar haeologists have called them Troglodytes. Their remains have been found at Gezer, Megiddo, Lachish, Beth-Shan, Gerar, Ta'anach, Ophel, and numerous other places.

Caves play a large part in Palestinian history. They abound in the limestone hills of Palestine and the Lebanon. In the Neolithic and the Bronze Ages they were used as dwellings, tombs, "holy places," and store chambers. The majority are of natural origin, though some were enlarged or altered, and a few were actually cut out of the soft limestone by the Troglodytes and the Bronze Age people. The caves vary in size from small chambers to vast caverns hundreds of feet long. In the best known series at Gezer it is possible to trace in the successive levels of débris on the floors the history of their occupation from the Neolithic period down to Mediaeval times.

It is possible that in Palestine cremation and megalithic burials were both practised. Dolmen tombs of neolithic and chalcolithic date exist on both sides of the Jordan, mainly on the east side. On the road from Shechem to Jericho, near a complete dolmen, there is an enclosure seventy-seven feet square composed of three courses of masonry, each stone of which weighs a ton or more. Within it a central monolith is surrounded by a stone circle twelve feet in diameter and there are stone alignments to a cairn in the vicinity. The megalithic structures in Palestine vary from a simple group of three upright monoliths overlaid with a stone slab to elaborate chambered cairns. It is in the Neolithic period everywhere that pottery first appears, though the date varies in different parts of the world. In Palestine the first crude efforts resulted in vessels of unrefined sun-dried clay which was useless for containing liquids. The potter's wheel was unknown, every pot being made by hand. The Palestinians, however, had trouble with their kilns, and it was not until late in the Bronze Age that the art of baking was understood. The characteristic neolithic pot is the neckless, hole-mouthed jar, a type which was continued down to Hebrew times. There were also stone jars with ledge and wavy handles used for grain or for wine and olive oil. At first amphorae had holes punched below the neck for suspension, but later one or more loop handles were attached. The saucer lamp had one side slightly pinched into a spout, but by Hebrew times this had developed into a proper spout. For the decoration of this pottery the Troglodytes used a rope-pattern finger moulding copied from the marks left by the ties originally placed around the unbaked pots; also rows of incised lines, shallow punch holes, and raised knobs. Sometimes a pale slip was put over the outside of the pot, and a decoration in the form of red drip lines was added. It seems that during this period there originated in the Jordan valley basalt and tracyhte bowls, and low table-stands of stone with three legs. The making of flint implements continued. Agriculture was the main occupation, though some hunting continued; civilization was growing out of the hoe-culture stage.

Our knowledge of the religion of the Neolithic Age is rather meager. The chief deity probably was the Mother-Goddess, whose clay and stone figures appear in palaeolithic times. With the advent of agriculture the Corn-Goddess and the Earth-Mother became more important. Her male partner is at first rare. Such male figures are found in the earliest sites of Asia Minor and North Syria, but they were slow in reaching Canaan. The religious life of the community centred around the sacred "Place," which often was a cave. At Gezer such a "Place" was a roughly levelled surface covered with eighty-three cup-shaped holes, some eight feet in diameter and nine inches deep, while others ranged down to as little as six inches across. Perhaps these cup-holes originally were made to hold food offerings or sacrificial blood; in later Semitic worship they are often found in connection with old pre-Canaanite sanctuaries, standing stones, and high places. Nothing is known of the actual rites; pig bones found suggest that the hog was a pre-Semitic sacred animal. The presence of food vessels and offerings suggests a belief in an after-life. Divination and the custom of consulting oracles were firmly established.

The end of the Stone Age and the advent of the metal-using Semitic civilizations inevitably overlap, and it is almost impossible to draw a hard and fast line for either. It seems that at Gezer invaders who used copper tools lived amicably among the Troglodytes until the latter were merged in the city civilization. Somewhere between 4000 and 3000 B.C. appeared a tall martial race known to us as the Amorites. Their speech seems to have had affinities with that of the Semites of Arabia, and in civilization they were far in advance of the neolithic tribes. Their size and their advanced culture so impressed the small Troglodytes that a legend grew up about a semidivine giant race, sons of God, who came and intermarried with the daughters of men.

The advent of the Amorites gave a tremendous impetus to the development of Palestinian civilization. They built upon the strategic spurs and hill-tops cities, which later developed into the mighty Canaanite strongholds, whose walls and towers seemed to touch the heavens. They dismayed the Hebrew spies and gave strong resistance to Joshua's army. When the Amorites took the neolithic hill-sites, in some cases they merely repaired the walls, but generally they rebuilt them entirely. They raised on rubble foundations stout walls of sun-dried brick, twenty to forty feet high; these walls were on the average twenty feet wide at the base and twelve to sixteen at the top. At least two passage gates were customary, flanked by buttresses and huge brick towers. Other towers at intervals surrounded the city. Near the main gate stood the king's palace and other important buildings. At Gezer beneath the courtyard of the palace lay the entrance to a great water tunnel; it is in reality a gigantic staircase two hundred nineteen feet long, ending at a powerful spring with a very deep pool about ninety-five feet below the rock surface. At private homes cisterns were cut into the rock.

The city dwellers cultivated the fertile soil outside the city walls. The domesticated animals included long-horned cows, sheep, goats, and pigs. Geese were probably kept, and the donkey was the beast of burden. Wheat, oats, barley, beans, bamieh, vetch, figs, pomegranates, grapes, olives, pistachio nuts, terebinth seed, and acorns were raised. Spinning was a regular industry.

Excavators have clearly established the early influences of Egypt upon Palestine: a fine carnelian necklace of Sixth Dynasty style was found in the chalcolithic level at Gaza. With the introduction of the potter's wheel ceramics took on a new quality. New types were brought in, but all the neolithic shapes continued, but with better execution. Decoration of the Early Bronze pottery consisted chiefly of burnishing and combing. Stone bowls imitated pottery originals, and frequently there appear potters' marks having a resemblance to those of Egypt and Naqada.

The first Amorites made spearheads, knives, daggers, and chisels of copper, but the Chalcolithic Age is poorly represented in Palestine. Some time before 2500 B.C. a people came from North Syria and introduced the smelting of bronze. In the south there seems to have been no metal working, and the use of flint remained general until the beginning of the Iron Age, but in other parts of Palestine smelting became well known. Swords and daggers with affinities to Syrian and Asia Minor types were introduced, and jewelry became very abundant. Gold also was known to the Amorites and the early Canaanites. Probably the amalgamation of the Amorites with the North Syrian invaders produced the Canaanites of Biblical tradition, who rebuilt the hill-cities.

It seems that the Amorites introduced into Palestine the cult of the sacred pillar or monolith, which represented the tribal deity. At Gezer the sacred "Place" consists of two caves, in the first of which stands a stone altar. When excavated, the skeleton of an infant was found upon it. The second cave was connected with the first by a narrow passage and probably was the place of an oracle. Near the passage stand two pillars, one male and the other female; the latter was worn smooth by the kisses of worshippers. Perhaps the cave was the abode of a female deity, as is suggested by the bronze model of a cobra. It seems that serpent worship was associated primarily with a female deity and was introduced by the megalithic people. Here were also found large two-handled jars into which new-born infants had been pushed head-first; the sacrifice of the first-born was clearly an important Canaanite rite.

The images of deities before 2000 B.C. were mainly rude clay figurines of the great Mother-Goddess. The chief female deity seems to have been a local form of the Mesopotamian Ashtoreth, and her consort seems to have been a form of the little-known Reseph. By the end of the Bronze Age he is represented quite frequently, and the figurines of Ashtoreth are everywhere. Egyptian deities also had a wide vogue.

The period after 2000 B.C. is much better repre-

sented in excavation than the preceding centuries. Tell el-Hesy, Ain Shemesh, Megiddo, Ta'anach, Gezer, Tell Fara, Beth-Shan, Gerar, Ophel, Jericho, and the tells of the Shephelah have all yielded a great amount of material. During the Twelfth Dynasty the firm Egyptian control of Palestine seems to have been widespread and peaceful. The standard of culture was almost, if not quite, as high as that of some 2000 years later.

The exact date of the Hyksos invasion of Palestine has not been determined, but they came at the end of the Early Bronze Age, probably before the end of the Twelfth Dynasty. They introduced the war-chariot and the horse; they probably regarded this animal as sacred. The Hyksos brought no culture of their own, but they had burial customs different from those of the Canaanites, who threw their dead casually into a cave without regard to orientation or posture. The Hyksos had pit tombs with shelves on which the dead were laid full length or with knees bent. Sometimes wooden coffins were used, and the bodies were usually orientated East or North. The expiatory punishment of Achan (*Josh.* 7) is strikingly paralleled by a similar happening at Gaza during the Hyksos occupation. Early Bronze age types of pottery did not entirely disappear, but new forms came in during the Hyksos period. One is a polished black ware with white-filled punctations and pear-shaped juglets with a button base and two-strand handles. Imported Mycenaean ware was also imitated. Probably Abraham came into Palestine during the Hyksos period. With the close of the Middle Bronze Age and the beginning of the Late Bronze Age the Hyksos domination came to an end.

At Beth-Shan, the ninth stratum of which is dated in the period of Thutmose III, are the remains of two temples built side by side over the site of an ancient Canaanite high place. The larger one apparently was dedicated to Merkal, the same god as Reseph. In the courtyard was found a brick table-like structure and the skeleton of a three-year-old bull. Probably the animal was slain with the bronze knife found on the spot. Entrance to the temple was by a flight of steps, where a sacred *maṣṣebāh* represented the god Merkal. Nearby the Egyptians had erected a sculptured form of Merkal on a pedestal. Thus we have here a temple, an ancient Canaanite high place, and the transition of a god from pillar form to human representation. During the Philistine occupation the god's name was changed to Dagan. Near the altar was a circular fireplace for roasting sacrificial animals. Near this temple stood a smaller one, dedicated probably to Ashtoreth; as she was also a goddess of war, Saul's armor was hung in her temple by the Philistines.

With the end of the Bronze Age the period of Egyptian domination ended. The Philistine invaders were an advanced people, expert craftsmen, and builders. At Beth-Pelet were found five large tombs in a row; they may have been the burial places of the "Lords of the Philistines." Pottery coffins of the Eighteenth Dynasty type were also found in the Philistine cemetery outside the city. On the lids of the coffins are modelled the human features of these Philistine lords.

The date of the Hebrew entry is not certain, but Joshua's conquest could not have been later than the beginning of the Iron Age, ca. 1200 B.C. Ta'anach seems to have shared the same fate as Jericho. Lachish, Ain Shems, Gerar, and Beth-Pelet were conquered about the same time. Zion and Gaza show no trace of Hebrew occupation until ca. 1050–950 B.C. The old Canaanite civilization was already in decay, though the contribution of the Philistines somewhat counterbalanced that loss. There resulted a conflict between the civilization of the Hebrews and that of the Philistines. The contributions made by the Hebrews were their simple desert customs and their religion. Many rites and ceremonies and sacred places, however, were taken over from the Canaanites.

There must have been considerable wealth in Palestine, as is shown by the booty taken by the Egyptians during the Eighteenth Dynasty. Omri founded Samaria on a grand scale, and Ahab continued his lavish enterprise. Excavations have shown that Ahab used a great deal of ivory, probably as panels in his private apartments and on furniture. During the first centuries of the first millennium B.C. ivory was everywhere used on a lavish scale. Elephants roamed Syria and Transjordan as late as 1447 B.C. The Tyrians, the Assyrians, and the Chaldaeans also used ivory for ornament extensively.

In Samaria the style of masonry was Phoenician. Foot-baths of oval shape found at Samaria and Gaza, seem to have been used for ritual washing.

With Solomon, splendor and extravagance came into Jerusalem. The remains of some of his stables have been found at Megiddo, Beth-Shan, Ta'anach, Tell Fara, and Lachish. In the minor arts the Hebrews made no special contributions.

Egyptian, Philistine, and Aegean imports were crudely copied. Stamped jar-handles bear familiar names: Hoshea, Laham, Azariah, and Haggai; some also have royal stamps.

Among the Hebrews the art of writing must have been quite general, to judge by the experience of Gideon (*Judges* 8: 14). He picked up a young man from Succoth who gave him a written list of the chief men of that town. Of Hebrew records (except for the Old Testament) nothing has been found except the inscription in the Siloam tunnel, a few ostraca and seal rings, stamped jar-handles, the Gezer calendar, the Moabite Stone, and the Lachish Letters.

Discoveries in Syria.—*The New Pallas* v, 1941, p. 49, gives reports of the results of recent archaeological work in Syria. At Baalbek, a crypt with Roman sarcophagi has been found near the Roman ruins. At Jebeil, during the building of a house, very important discoveries were made: statues of kings, gold ornaments, household utensils and coins belonging in the Phoenician period. The French Service des Antiquités at Beirut is continuing the excavations at this place.

AEGEAN

Aegean Wall Painting.—In *Technical Studies in the Field of the Fine Arts* x, 1942, pp. 178–223 (15 figs.) PRENTICE DUELL and RUTHERFORD J. GETTENS make a detailed and valuable study of the problem of Aegean wall painting. They point out that alone among their contemporaries, the artists of Crete appeared to be free from the limitations imposed by religion and academic formulae. No historical events are depicted, and no commemorative inscriptions given. Despite close trade relations with Egypt and Western Asia, Crete developed an art quite independent of them and all its own. What is known of the history of Aegean civilization and its spread to the mainland of Greece is then given at some length, followed by a detailed description of the palaces of Knossos, Phaistos, Mycenae and Tiryns. Interest has been centered on the wall paintings from these sites because of the belief that true fresco was employed by the Minoan artists. In this method of painting, the natural colors are mixed with water, and applied directly to a wet lime plaster wall. No binding medium is necessary, as when the plaster sets the pigments are permanently incorporated with the plaster and the painting will last as long as the plaster itself. The artist can work only as long as the plaster remains wet, so only as much plaster is applied to a wall as can be finished in one day. Joins or seams, therefore, appear, which must be concealed as far as possible, and the artist must have sureness and dexterity, for mistakes cannot be eradicated, as well as ability to work quickly. The plaster is usually put on in several layers, the under-coat being thoroughly wet before the upper coat of very thin, fine plaster is applied. In 1910 and 1911 fragments of painted plaster from Knossos were studied and published for Sir Arthur Evans by Noel Heaton, who reached the conclusion that true fresco was employed. He stated that the walls were prepared by laying a smooth coat of lime plaster on a prepared rough-cast surface. This layer was very thick (¾ in.) and hard enough to take a polish. In some cases it was formed of an under-coat one-half inch thick, to which a second coat was applied; in others, no line of cleavage appeared, and it was one thick coat. Analysis proved that where two coats were applied, the same material was probably used for both. The plaster was made from pure caustic lime, unmixed with inert material. The palette was simple: white (calcium carbonate), black (carbonaceous shale or black chalk), red and yellow (iron oxide), and blue (a copper-colored glass or calcium reduced to powder). Heaton then gave his reasons for considering these paintings true fresco. He later examined fragments from Tiryns and found the plaster similar to that of Knossos, with the walls built in two distinct layers, and an identical palette, to which green (malachite) had been added. These wall paintings, too, he believed to be true fresco.

In a book published in 1926, Alexander Eibner, on the basis of three fragments from Tiryns, Knossos, and Mycenae respectively, took issue with Heaton's conclusions. He denied that the paintings were true fresco, and believed that they were painted on a dry wall with a nitrogenous organic binding medium. A fourth piece, from Knossos, had its plaster composed of almost equal parts of gypsum and calcium carbonate. In some places the color had flaked off, and there was no evidence of a binding medium. This Eibner called a "lime-gypsum" technique, other methods employed being named by him "lime-secco" "lime-fresco" and "lime-casein."

After these abstracts of the conclusions reached by previous investigators, Duell and Gettens begin to state their own conclusions. If the Aegean wall paintings are true fresco, they are

not only the earliest known instances, but they stand as isolated examples in ancient painting. Egypt and Western Asia never used true fresco; Egypt always used the tempera method, and lime plaster was not employed till Ptolemaic times, gypsum plaster being used. In Western Asia, too, tempera, usually on mud plaster, with a priming coat of gypsum or lime whitewash, was the normal technique. Examples from Mari, Nuzi, and Khorsabad are mentioned. It is also to be noted that the Aegean peoples who fled from the Dorian invasion to Asia Minor did not carry the tradition of fresco painting with them. What little we know of Greek mural paintings shows that tempera was used. Duell and Gettens have shown (*Technical Studies* ix, 1940, pp. 74–104) that the Etruscan tomb paintings, often called fresco, were actually a form of tempera. The earliest appearance of fresco painting, leaving out Crete, may perhaps be found at Pompeii, and this is not true fresco, but part of the encaustic process.

The Fogg Museum has recently acquired six fragments of painted plaster from Knossos and Phaistos in Crete, and from Mycenae and Tiryns, which are in their original state. The plaster in every case is pure calcium carbonate, with minor impurities of silica and gypsum. There is no evidence of this plaster being built up in layers. It is very durable and hard, particularly in the two examples from Tiryns. The palette agrees with that found by Heaton, except that the blue is the "Egyptian blue" and is not made from glass, but is a definite crystalline substance. The paint is strongly fixed to the plaster, and is unaffected by immersion in boiling water or organic solvents. The plaster can be dissolved with effervescence by treatment with dilute hydrochloric acid, and a stronger and more rapid effervescence would break up the paint film. Further examination revealed the presence of some binding medium that held the blue particles together. It is slightly yellow-brown in color, and tests showed that it is not organic in nature. It is identified as chalcedony. All fragments showed evidence of it, those from the mainland having a somewhat thicker layer than those from Crete. It is unaffected by hot concentrated acids, and not consumed by ignition, but can be dissolved in hydrofluoric acid. This binding matter explains why the paint is unaffected by water or organic solvents. By cutting cross sections, a moderately well defined line of demarcation between plaster and paint film is revealed. In the case of the blue pigment, it appears to be quite independent of the plaster. Little or no information of a reliable nature was obtained as to how the pigment is held to the plaster surface. There then follow detailed descriptions of each specimen. The main findings from the study of these specimens are then restated, and the conclusion reached that Aegean wall paintings were not executed in true fresco after the manner of the Italian painters. The indications are that some form of tempera was used, and the painting method was similar to that of the Egyptians. These conclusions are adverse to those of Heaton, and more in agreement with Eibner, although the evidence on which they are based is contradictory to his. A number of questions which remain unanswered by this investigation are then given, dealing principally with the lime plaster: why it was used, how it was possible to build it up in such thick, hard layers without the addition of inert material, how it was prepared for the reception of paint, and how dry it was when paint was applied. But in spite of these unsolved problems, we must definitely reject the long-established belief that Aegean wall paintings were done in true fresco.

Unpublished Objects from Palaikastro and Praisos.—In *BSA.* xl (session 1939–40), pp. 38–59; 19 pls.; 46 figs., objects from Palaikastro and Praisos are published, largely from notes and manuscripts left by the late R. C. Bosanquet. On pp. 38–39 (2 pls.) R. W. Hutchinson publishes "Type Specimens of Minoan Pottery from Palaikastro", dating from Early Minoan III to Late Minoan IIIb, and four Minoan stone vases and a hammer. The objects are briefly described and attention is called to modifications of terminology and to local peculiarities.

On p. 39 Hutchinson gives a list of fragments of *rhyta* found in a L. M. I deposit at Palaikastro overlying a M. M. III deposit and beneath the ashy deposit from the later temple of Zeus Diktaios. They serve as evidence of "A Minoan Shrine on the Site of the Temple at Palaikastro."

On pp. 40–41 (pl.), the same writer treats of "Hellenic Pottery from the Temple Site of Palaikastro." This falls into three groups, (i) Geometric, (ii) Archaic, and (iii) Hellenistic. Three cups with geometric decoration are really Hellenistic, but there are numerous cups, a pyxis, and sherds of Geometric date. There are also archaic sherds, among them a fragment with a design of impressed lozenges. A piece of terracotta 12 cm. long has moulded decoration representing a lion. Some,

at least, of the twelve torch-holders and forty lamps recorded by Bosanquet are to be assigned to the sixth century, little or nothing to the fifth and fourth centuries, but many lamps, some bowls, an "oka", some cups, and a plate are Hellenistic.

On pp. 41–42 (4 pls.), Hutchinson publishes "Objects of Terracotta from Palaikastro and Praisos." One is a pink bull's head of terracotta, found at Praisos, which recalls in general appearance the bull's head on the "Queen's Cup" from Dendra in the Argolid. It may be attributed to the L. M. IIIa period. A sima from Palaikastro, with part of a procession in relief, was published from a drawing in *BSA* xi, pl. xv. Other fragments of the sima are in the Candia Museum. The head and body of a male figure probably represents a votary and dates from ca. 575 B.C.

"Miscellaneous Finds" are described by Hutchinson on pp. 42–43 (2 figs. in text, 7 on a pl.). One is a fragment of a bowl of Egyptian type from Praisos, published from a drawing of Bosanquet's. The material is not known. The bowl has the form of a shell, with a bird's head as handle. It is probably of Hellenistic date. References to many similar bowls are given.

As § 6 of this series (pp. 43–49; 48 figs.) EDITH ECCLES publishes and describes, in great measure from Bosanquet's notes, "The Seals and Sealings." There are 39 seals, two seal-impressions on pottery, and six graffiti on pottery and terracotta loom-weights. There are three-sided prism-seals, one pendant seal or signet, three oblong bead-seals, six amygdaloid seals (M.M. III–L.M. I), seven lentoid seals, three cylinders, and one scarab. Few of these are dated. The finding of a green steatite seal of the Third Early Minoan period in a house of the Second Late Minoan period, at the bottom of a jar used in purifying oil, may indicate that the seal was used as an oil-making charm. Many terracotta loom-weights were found. They fall into two classes, "blocks" and "discs." The blocks are generally rectangular; most discs are nearly circular, but drawn out and flattened at the top. Other types are less common. The dates of these are not specified. One sealing is on a Hellenic amphora-handle. Six graffiti are on pottery or loom-weights. Two of them are double axes, one a single axe, and one (Hellenistic or later) a compass pattern.

A "Bibliography," giving references to previous descriptions of the British School's excavations at Palaikastro and Praisos, is added as § 7 of this series (pp. 49–50).

GREECE
GENERAL AND MISCELLANEOUS

Ithaca.—Excavations 1930–35.—In *BSA.* xl (session 1939–40), pp. 1–4; 2 figs., W. A. HEURTLEY, after brief mention of previous excavations in Ithaca by Gell, Guitara (1811–14), Schliemann (1868 and 1878), Dörpfeld and Wilhelm (1896), Dörpfeld, assisted by Goekoop and Preuner (1900), Vollgraff (1904), Oikonomos (1930), and Kyparissis (1930 and later), gives a summary of the work carried on by the British School at Athens in the years 1930–35. This expedition was on a larger scale than any of its predecessors. Work was carried on at Pelikáta, Hagios Athenasios (the "School of Homer"), Stavrós, and the Polis Cave in the northern part of the island, at Aetós, Pisaetó, and the neighboring region in the southern part.

Excavations in Ithaca; Conclusions.—In *BSA.* xl (session 1939–40), pp. 5–13; 3 pls. ix, W. A. HEURTLEY gives a summary of his conclusions based on the description given in the *Odyssey* and on the results of excavations. The Homeric description of Ithaca is confused and incorrect, that of Asteris is inaccurate, the cave of the nymphs is a synthesis of the caves at Dexiá, Polis, and Marmarospeliá. At Polis bronze tripods of the seventh century B.C. were found, showing that in or near the time of Homer objects were dedicated there. In the northern part of the island evidence of continuous occupation from the second half of the Early Helladic period to the LH III period was found. At Pelikáta, Mycenaean sherds were found, and large stones indicate the existence of a contemporary building, to be identified as the Palace of the *Odyssey*. The circuit wall may be contemporary or earlier.

The city (a small town) stretched around the head of the bay. Other LH III sherds were found at Hagiós Athanasios and in the cave at Polis; a few were found in the southern part of the island, at Aetós. Indeed, pottery of all periods testifies to continuous occupation and to the growth of contact with mainland Greece and Ionia. Clearly tradition could be preserved. All this lends significance to the name of Odysseus inscribed on the dedicatory mask left in the cave at Polis in the first century of our era and to the Odysseia held in Ithaca in the third century B.C. Everything indicates that modern Thiaki is the Ithaca of the *Odyssey*. Homer must have derived his topographical information from sailors and have added something from his own imagination.

Bronzes from Palaikastro and Praisos.—In *BSA*. xl (session 1939–40), pp. 51–59; 12 pls.; 4 figs., as §§ 8 and 9 of the series of articles on objects from Palaikastro and Praisos, SYLVIA BENTON publishes and discusses bronzes from Palaikastro (§ 8) and Praisos (§ 9). There are fragments of eight to ten tripods from Palaikastro in the Candia Museum and one in the British Museum. This "certainly comes from the same workshop as Candia Museum no. 86 and carries a similar figurine." The legs of Cretan tripods have sharper contours and simpler decoration than the mainland types. This kind of tripod is discussed by Miss Benton in *BSA*. xxxv, 56. The dates there suggested "are subject to revision, but the termini are firmly fixed—from proto-Geometric times to the end of the eighth century." The shields are later. The tripods were to support cauldrons. Here two tripod-legs with single sections, four with fancy sections, and one with double-T and rectangular sections are illustrated, as are two tripod-handles. These are all cast. Fragments of two other tripod-legs are hammered. There is also a fragment of a tripod-stand on which is a figurine—a kneeling human figure.

Four fragmentary bronze shields and a further fragment are published, three of the photographs being repeated from Kunze, *Kretische Bronzereliefs*. One (Bosanquet, *BSA*. xi, p. 306 b; Kunze, no. 59, pl. 45) is the lower zone of a shield: stags grazing; early seventh century. The second (Bosanquet, *BSA*. xi, p. 306 a; Kunze, no. 40, pl. 38, fig. 25, p. 154) has an outer frieze of grazing does, interrupted by a *Potnia Theron* and an inner frieze of couchant lions turning away from a griffin-bird and a sphinx. It dates in the second quarter of the seventh century. The third lacks the boss, which was a feline head. The paws of the feline press down on two sphinxes. Above are two rampant lions and a tree. In the border, spiral ornament between cables. Middle of the seventh century. The fragment is a scrap of a lion's muzzle (Bosanquet, *BSA*. xi, no. 1; Kunze, no. 15, pl. 29) of the middle of the seventh century. The fourth shield, dating in the third quarter of the seventh century, shows a procession of stalking lions, two of which have pulled down deer. Twelve miniature shields are plain, with raised centres. They have punctured dots for attachment to their linings and two holes for suspension. A similar shield has a zigzag ornament. Helmets are represented by two fragments of a full-sized one and three of a miniature cap-helmet.

A statuette (l., 0.07 m., w., 0.024 m.) of a lion, made hollow and filled with lead, has analogies with lions at Delphi and with Protocorinthian drawings. It is to be dated at the beginning of the seventh century. Part of the torso of a human being (catalogued in the Candia Museum, 1321, as part of a corselet) is assigned to the middle of the seventh century. Part of a face (h., 0. 106 m., thickness, 0.005 m.) was bought in 1906. It is probably ancient, but the work is so poor as to be undatable. Miscellaneous objects are: a knot-headed pin, a fibula with nearly semicircular bow, a mirror handle or patera handle with beaded design, and a hydria handle with palmette decoration, which is assigned to the early sixth century. Brief descriptions of these objects are accompanied by comments. Bronzes of Minoan date from Palaikastro include: a bull (h., 0.08 m.), the head of a similar bull, a pin with a seated dog as head, two fragmentary figures of votaries, male and female, and a miniature female figure. The pin and the human figures have been published in *BSA*. Suppl. i, 1923, figs. 101–104.

Bronzes from Praisos, like those from Palaikastro, have for the most part been published elsewhere. A handle of a cast tripod-cauldron is flat in section and has open wedges. There are "about eleven" miniature shields in the Candia Museum, and some flat discs. Miniature corselets, thirteen (?) in number, are assigned to the seventh century. There is a part of each of two life-sized corselets. A miniature "stove pipe" helmet is assigned to the end of the eighth or the beginning of the seventh century, and another (or five others?) is described as similar but smaller. A miniature Corinthian helmet with eye-holes, but no nose-piece, is assigned to the early seventh century. There are two plain *mitrai* of the middle of the seventh century, and two uncertain objects. A figurine (h., 0.09 m.) represents a nude, seated figure, probably female, perhaps made about 700 B.C. The arms are broken, but probably hung down. A small lion, cast hollow, was attached to some straight object. It is assigned to the early sixth century. A bull (l., 0.083 m.) with head lowered is poor work of the early seventh century. There are two legs of a hammered statuette of a human figure, a piece, probably from near the arm, of a similar statuette, and a part of the breast of still another. A small, nude male figure, with long pig-tail, has very slender proportions and is of poor Minoan workmanship. It was

probably votive. Small objects are: a knot-headed pin, a pin with a coiled head, and a disc-headed pin, six fibulae, and three fragments of what was probably a crown or head ornament. This belongs to the late fifth century. Two of the fragments show in relief Bellerophon on Pegasus confronting a lion. Above is a head of Athena, of Parthenos type, with owl's wings on her helmet. A discussion of combs on griffins and of crowns follows. Such crowns, in Athens and Eleutherae, were probably crowns for the dead. A silver disc-headed pin was one of a pair, but the head of its mate is lost.

Dicte and the Temples of Dictaean Zeus. — In *BSA*. xl (session 1939–40), pp. 60–77; 2 figs., is a memorandum written before 1910 by the late R. C. Bosanquet and probably intended as a historical introduction to the definitive report on the British School's excavations at Praisos and Palaikastro. Some sections have been revised by R. W. Hutchinson, curator of the Candia Museum. The geography of the Eteocretan peninsula in eastern Crete, the history and remains of its chief towns, their boundary disputes and their dependencies are discussed in some detail. The chief towns are Praisos, Palaikastro (Heleia), Itanos (Erimopoli), Hierapytna. At Palaikastro a temple of classical times on the site of a Minoan shrine is identified as that of Zeus Diktaios, and votive offerings at the site of a temple at Praisos, which was destroyed about 140 B.C., indicate that a temple of Zeus Diktaios once stood there. The Dicte where Zeus was born may have been the present Modhi, but no cave is known there. Other sites suggested, where there are caves, are not in the right place. Several caves are discussed. The Dictaean story of the birth of Zeus seems to be an Eteocretan tradition independent of the Hesiodic myth of his birth on Mount Aigaion.

Helmets and Corselets in Early Greece. — In *BSA*. xl (session 1939–40), pp. 78–82; 2 pls., Sylvia Benton discusses helmets and corselets of the seventh, sixth, and (less fully) fifth centuries B.C. Their development is traced on grounds of style by comparison with one another and with other monuments. Decorated *mitrai* are assigned to "the middle years of the seventh century."

Olympia. — *The New Pallas* v, 1941, p. 121, reports the resumption by the Germans of their excavations at Olympia, under the direction of E. Kunze. Work is limited to the immediate surroundings of the Temple of Zeus, and the region of the stadium, in order to determine its exact shape. The finds include arms, terracottas and other objects of prehistoric and Classical date.

Athens. — *The New Pallas* v, 1941, p. 103, reports war-time activities of the German and Italian archaeological schools at Athens. The German Institute was then planning to conduct excavations at Larissa and Volo, while the Italian School had certain sites in Northern Greece in view.

SCULPTURE

Archaic Statuette from South Arabia. — In *BSA*. xl (session 1939–40), pp. 83–84; 2 figs., J. D. Beazley publishes a bronze statuette which was offered for sale by a tribesman near the mouth of the Wadi Jardan in the Aden protectorate. It is five inches high and represents a warrior wearing corselet, helmet and greaves, but no chiton. The hands are missing. The right probably held a spear; the left may have held a shield. It seems to be good Greek work of the third quarter of the sixth century B.C., Peloponnesian, perhaps Laconian. The statuette was previously published in *Man*.

Fifth-Century Goddess. — Gisela M. A. Richter publishes, in *BMMA*. new series, i, 1943, pp. 206–212 (14 figs.), a fragmentary marble female statue, 1.30 m. high as preserved, acquired by the Metropolitan Museum in 1942, said to have been found in Southern Italy, and previously published (*Brunn-Bruckmann*, 763–765) when in a private collection in Switzerland. Miss Richter believes that the statue is of Greek workmanship, but that sometime in antiquity, probably in the Roman period, the face was accidentally broken off, reattached, and reworked. The top of the skull is missing, but was not a fracture, as it was levelled off and smoothed round the edge. The treatment of the hair shows that the head was originally covered, and a helmet is suggested, making the figure an Athena. An ancient hole in the upper left arm would thus be explained, as holding a support for her spear. The spear and helmet were presumably of bronze. It is suggested that it served as a cult image, and the worship of Athena in Greek cities in Southern Italy is well attested.

Hellenistic Statue in Zürich. — *The New Pallas* v, 1941, p. 126, announces the acquisition by the Archaeological Museum of the University of Zürich of a terracotta statue of a pugilist, 44.5 cm. high, said to have been found in Sicily, in the necropolis of Centuripe near Catania. It is possibly a copy in miniature of a larger statue, was probably a tomb offering, and dates in the third or second century B.C.

INSCRIPTIONS

Early Attic Votive Monuments.—In *BSA.* xl (session 1939–40), pp. 17–39; 7 pls.; 14 figs. in text (45 figs. in all), ANTON E. RAUBITSCHEK discusses many early Attic dedicatory inscriptions which he connects with the works of sculpture to which they belong. The Ionic column with the dedication by Alkimachos (*IG.* i², 545, 663) supported an Ionic capital on which was a seated statue (Acropolis no. 629, Payne, pl. 118, 3–5) of the father of the dedicator, Chairion, an Athenian treasurer. The date suggested is 520–510 B.C. The total height of the monument must have been about 2.5 m. The other two small statues of "scribes" were probably also dedicated to treasurers. They may have been produced in the same studio, but not by the same hand as this.

The fragment of an Ionic capital (Acropolis no. 3850) and the plinth with feet of a *kore* (Acropolis no. 611) fit together, giving us an Ionic *kore* by Gorgias. The column with the retrograde inscription *IG.* i², 489, the dedication of Ameinias, and the signature of Gorgias may be united with the two fragments. Lauffer restored the name of Gorgias in the artist-signature of Nauklas' dedication. The rectangular socket of this base may be connected with fragments of one of the two groups of a man leading a horse (Acropolis 571 and 574). Similarity of style connects 571 and 574 with the feet of a *kore* no. 475. So it seems that we possess, in the dedications of Ameinias and Nauklas, sculptures by Gorgias, the dedication of Ameinias being the later. The placing of statues on columns was intended to make relatively small figures as impressive as large ones. In the early part of the sixth century the representative sculpture is colossal, in the latter part of the century the best statues are under life size.

The study of the inscription *IG.* i², 499 leads to the conjecture that Lyson's dedication is the work of a Boeotian artist and belongs to the decade 510–500 B.C. This enables us to identify the *kore* Acropolis no. 612 as the *kore* of Lyson. This figure, the *kore* no. 675, and the Nike no. 693 are closely related, but Lyson's work is thickset when compared with the elegant Ionic work of the other two. The entire monument, base, pillar, capital, and statue, reached the height of 2.5 m.

The large column bearing the signature of Pythis (*IG.* i², 507) and the dedicatory inscription of Epiteles carried the capital Acropolis no. 136, on which are the plinth and feet of a female statue. This may be completed as an Athena by Pythis. Another base bears the signature of Pythis and part of a dedicatory inscription by two sons of Epiteles (*IG.* i, 506). Two small sculptured fragments are ascribed to Pythis. The total height of the monument dedicated by Epiteles was 3.5 m. The capital is one of the earliest round capitals belonging to votive monuments. The date is about 510–500 B.C.

The inscription *IG.* i², 620 is engraved on one of the longer vertical sides of a rectangular pillar capital and tells of the dedication of first fruits by Lysias and a tithe by Euarchis. On the top of the capital are two round sockets, and the plinth of *kore* no. 683 fits the larger of these. The letter-forms of the inscription and the shape of the pillar date the monument about the end of the sixth century. What may have fitted into the smaller socket on the plinth is not known.

The capital with the dedication of Simon the fuller (*IG.* i, 642) has on its upper side a socket for a plinth. The fragment of a plinth (Acropolis no. 429) with parts of the feet of a statue seems to belong with the capital. The fragment of an unfluted column bearing the signature of Eleutheros seems also to belong with the capital. The forms of the letters fix the date about 500 B.C. Apart from this *kore* nothing is known of Eleutheros.

The ill-preserved capital with the inscription *IG.* i², 689 belongs with a fragment of a plinth (Acropolis no. 4843) on which are traces of the feet of a *kore*. The capital fits into Miss Shoe's group of early examples of the *cyma recta*. The date is the last decade of the sixth century. The circular capital with the dedicatory inscription of Aischines (*IG.* i², 543) and the circular plinth with the remains of the feet of a *kore* (Acropolis no. 456) belong together and are to be assigned to the end of the sixth century. The half-preserved pillar capital (Θ50) and the plinth fragment Acropolis no. 419 belong together. The feet on the plinth, the form and technique of the pillar indicate a date round about 490 B.C. The inscription *IG.* i², 593 is engraved horizontally on a smooth panel just below the upper edge of a very roughly dressed column. A plinth with the feet of a *kore* fits into a socket on the top of the column. This is the only example of a marble statue set on a column without a capital. Letter-forms, modelling, form and dressing of the column all point to a date about 480 B.C. The dates proposed for these four monuments are later than those given by Langlotz, *Die Koren*.

Most of the known and important sculptors in the first half of the fifth century worked in bronze and were either Peloponnesian or Athenian. The only sculptors in marble known to us from signatures on bases are Euphron from Paros and Euenor, here shown to have been from Ephesus. We possess three signatures of Euenor, all of the fifth, not the sixth, century. The earliest (*IG.* i², 496) is on an unfluted column, two fragments of the capital of which are preserved (Acropolis nos. 3751 and Θ 241), and can be dated by its letter-forms close to the year 500. With this date the form of the capital agrees. The second signature of Euenor (*IG.* i², 494) is on a better preserved column, with which its capital has survived. The plinth, feet, and part of the shins of a *kore* (Acropolis nos. 497, 318, 344) which stood upon it are preserved. The dedication is by Kiron. The *kore* is closely related in style to the Euthydikos *kore*, but is far inferior to it in workmanship. Perhaps it is the work of Euenor's atelier, not of the master himself.

The column with the dedicatory inscription of Angelitos (*IG.* i², 495) is the latest of the three monuments from Euenor's workshop. Its capital Acropolis nos. 3750 and 264) has a socket into which the plinth of a statue of Athena fits (Acropolis no. 140). All are of the same coarse-grained, bluish marble and show traces of identical rasp-work. The artist-signature appears older than the dedicatory inscription and seems to be by the same hand as the two other signatures, though it has some later letter-forms than they. The palmette decoration of the capital, also, is early in type, though later than that of the capital of the dedication of Phrynos and Aristogeitos (Acropolis no. 3779). The statue of Athena belongs to the beginning of the severe style. We may conclude that it is not earlier than 480 B.C. Comparison of the Athena with what remains of the dedication of Kiron shows clearly that the two cannot be by the same sculptor. Either the *kore* dedicated by Kiron is a statue made by a pupil and the Athena is a work of the master himself or the *kore* is the work of Euenor and the Athena a work of a younger artist who was far superior to Euenor. The father of the painter Parrhasios was named Euenor and was a painter himself, contemporary with Polygnotos. Several artists of that time were both painters and sculptors. Parrhasios, a younger contemporary of Pheidias, provided Mys with the designs for the reliefs on the shield of the Athena Promachos which was finished, after nine years of work, before the middle of the fifth century. If we may assume that Parrhasios' father was the painter and sculptor Euenor, Pheidias in his youth may have studied both painting and sculpture with him, for we are told that he practiced painting in his youth, and neither a painter nor a sculptor in marble is mentioned among his teachers. If Euenor himself made the statue of Athena, he must have exercised great influence upon Pheidias, but if Euenor made the *kore* dedicated by Kiron, the youthful Pheidias may be the artist of the Athena dedicated by Angelitos.

The bronze Poseidon from Cape Artemision is ascribed (with the Omphalos Apollo) to Kalamis, and the suggestion is cautiously advanced that it may be the statue set up in the Isthmian sanctuary by the Hellenes after the battle of Plataea (Hdt. ix, 81). Many other works of art are discussed or mentioned in establishing the stylistic relations of the monuments especially treated in this article.

List of Victors at the City Dionysia.—EDWARD CAPPS in *Hesperia* xii, 1943, pp. 1–11, discusses a new fragment of Pentelic marble, preserving thirteen letters of the heading and several lines of an inscription, found in May, 1937, on the north slope of the Areiopagos. It constitutes a part of *IG.* ii², 2318 (named b²), belonging at the top of columns III and IV, and fixes two dates for the interpretation of the Victors' List of the comic poets at the City Dionysia, namely that of the victory of Hermippos in 436/5 and that of Pherekrates in 438/7 B.C. The heading ΤΡΑΓΩΙΔΟΙ is followed by Δ, to be restored appropriately as Δημοτελεῖς, a literary term for a festival, for sacrifices, sanctioned and maintained by the people. The great innovation commemorated by the heading is the assumption of the responsibility by the Demos for the maintenance of the contests at the festival by a system of choregi.

Πραξικλέης Σωφόφτου.—J. D. BEAZLEY in *Hesperia* xii, 1943, p. 88, argues in favor of the reading Σωφόρτου found in the name Πραξικλέης Σωφόρτου, Councillor of Erechtheis in 367/6 B.C. This reading on the Agora stone, discussed in *Hesperia* xi, 1942, p. 233, line 11, and p. 237, is supported by the same name Σώφορτος occurring on the Arkesilas cup in the Cabinet des Médailles (*CVA.*, pls. 20-21).

Inscriptions from the Agora.—A. E. RAUBITSCHEK analyzes carefully with illustrations and index in *Hesperia* xii, 1943, pp. 12–88, a large

number of inscriptions found in the Agora Excavations in Athens, including notes on the epistatai of the Athena Promachos statue, on the Aphrodite statue of Kalamis, a new fragment of the Poteidaia epigram, the first Athenian casualty list of the Peloponnesian War, a casualty list of the Sicilian expedition, Athenian property on Euboia, an Eleusinian inventory from Athens, three dedications to Zeus Meilichios, dedications to Zeus Boulaios and Hestia Boulaia, altars to Zeus Ombrios, a choregic monument of 337/6 B.C., a rediscovered signature of Praxiteles, two Prytany catalogues of Hippothontis, two Prytany catalogues of the Roman period, a record of the Athenian archon Dioteimos, of the Panhellenic archon Dorion, of the career of L. Lucilius Pansa Priscillianus, and finally a dedication to Nemesis.

Royal Letters in Beroea.—In *BSA.* xl (session 1939–40), pp. 14–16, J. M. R. CORMACK republishes the letters from Demetrios II to Harpalus inscribed on a stele at Beroea (*BSA.* xviii, pp. 134–39, no. 1). The date (36th year) is either 242/1 (Tarn, Woodward) or 249/8 (Beloch) or a year later (Hiller von Gaertringen). The sanctuary of Herakles mentioned may be a private shrine dedicated to Herakles Kynagidas by an association of κυναγοί. Numerous supplements in the text and many comments are offered.

ITALY
GENERAL AND MISCELLANEOUS

Excavations in Rome.—*The New Pallas* v, 1941, pp. 14, 18, 20, 37, 88, gives summaries of recent discoveries in Rome. Beneath St. Peter's, tombs of a cemetery dating in Imperial times have been discovered, which may yield valuable information for the history of early Christianity. Announcement is made that excavations will be resumed near the Via delle Botteghe Oscure, where the remains of the Temple of Bellona were found in 1938. In excavating for the construction of the underground railway near the Via Cavour, remains of a villa of the period of Hadrian were brought to light, with many sculptures, while in the same project, near the Via Appia, a second century A.D. burial was unearthed. In the Grotte Vaticane, wall decorations with representations obviously made by Egyptian artists at the beginning of the Empire have been uncovered at a depth of 4 m. beneath the old pavement. The Via Cornelia, which was believed to have passed underneath the Basilica, seems to have been more to the right, while the Circus of Caligula must be on the left, as no traces of it have been found. Under the basilica of Domitian's palace on the Capitoline, excavations revealed a hall with well preserved frescoes, dealing with the worship of Isis, and dating in all probability in the reign of Caligula.

In *ibid.* vi, 1942, p. 75, there is a further report on the excavations in the Grotte Vaticane. Several mausoleums have been uncovered, of which one, dating in the second century A.D. is particularly beautiful. A second one is decorated with Egyptian subjects, while a third one has a black and white mosaic pavement. Several beautiful sarcophagi of Greek marble were found.

Lama dei Peligni.—In this place, in the province of Chieti, a pre-Roman necropolis has been recently excavated by UGO RELLINI. A pre-Neolithic skeleton was found here, and, more recently, the sarcophagus of an Italic warrior, the tomb fittings from which resemble those from the Capistrano tombs (*The New Pallas* v, 1941, p. 109).

Locri.—*The New Pallas* v, 1941, p. 109, reports that the site of Locri has been definitely discovered at Caruso di Locri, where house remains dating in the sixth and fifth centuries B.C. have been uncovered.

Baccano.—At this place, at the eighteenth milestone north of Rome, there was discovered in 1873 an estate of the period of Julius Caesar, with particularly beautiful mosaic pavements. *The New Pallas* v, 1941, p. 133 announces that G. Q. GIGLIOLI is planning to resume excavations at this point.

Bologna.—Near the Via Emilia accidental diggings in a court have revealed a Roman mosaic pavement of the first or second centuries A.D., with designs in black and white, very well preserved. The length of the pavement is ca. 4 m., and the design consists of an amphora in the center, with dolphins at the corners (*The New Pallas* vi, 1942, p. 85).

Dalmatia.—*The New Pallas* gives brief abstracts of recent archaeological developments in Dalmatia. At Trogir (Trau) remains of buildings of the Roman period, of the early Christian era, and of the Croatian colonization have been found. Especially mentioned are reliefs with mythological scenes, remains of an altar and of a sarcophagus, and a grape-press of Roman work, and also the ruins of a Croatian church dating in the tenth century (*The New Pallas* v, 1941, p. 33). For Spalato, announcement is made

of the appointment of a committee of archaeologists, historians and architects to draw up plans for the excavation and restoration of the Palace of Diocletian (v, 1941, p. 83). At Salona, archaeological research and excavation has been begun, yielding already several mosaics (vi, 1942, p. 79).

Algeria. — *The New Pallas* vi, 1942, p. 85, gives reports of archaeological activities at various Roman sites in this region. At Bône (Hippo) the uncovering of the Roman theatre has been completed, and the Académie des Inscriptions is endeavoring to have the ground where the Forum is supposed to have been, acquired by the State. At Kheneg, near Constantine, excavations begun in 1940 by ANDRÉ BERTHIER to uncover the Tidditanarum citadel have been resumed. At Lambessa, work has been started to lay bare the amphitheatre erected by Marcus Aurelius and rebuilt later by him and Commodus.

Netherlands. — *The New Pallas* v, 1941, gives various reports on the results of excavations of Roman sites in Holland. At Valkenburg near Leiden, foundations of two Roman barracks were discovered in a campaign directed by A. E. VAN GIFFEN (p. 80). At Heerlen in Dutch Limburg, excavations begun in 1940 by H. J. BECKERS are being continued in cooperation with the Biological-Archaeological Institute of the University of Groningen. The first object is to clear the site of a Roman bath, and then to trace the ground plan of the fort to which the bath belonged, and the Roman system of canals. Foundations of another large Roman building have also come to light (p. 83). At Kerkrade in Dutch Limburg a Roman villa has been discovered, yielding pottery, iron objects, and painted stucco work (p. 133).

In *ibid.* vi, 1942, p. 75, it is reported that another Roman villa has been discovered at Kessel-Hout in North Limburg, unfortunately in a bad state of preservation. Other remains of Roman buildings have also come to light, all near a Roman house discovered in 1940.

Roman Fortress on Danube. — *The New Pallas* vi, 1942, p. 87, announces that ruins of a Roman citadel of the time of Claudius have been found near the city of Golubać in Jugo-Slavia, and also remains of a bridge across the river.

Roman Site in Bulgaria. — An Italian expedition has completed its investigation of the ancient Oescus, at Ghighen on the Bulgarian bank of the Danube. The principal discovery was a Roman building of considerable size, belonging to the first century of our era. A small museum containing the finds from this region has been opened (*The New Pallas* v, 1941, p. 133).

ARCHITECTURE

Pompeii. — *The New Pallas* v, 1941, pp. 14, 37, 66, gives brief accounts of recent developments at Pompeii. The clearing of the palaestra has been completed, and has yielded no less than 465 inscriptions and drawings, mostly caricatures scratched on the portico by competitors or spectators. The house of the poet Lucretius has been identified as the "House of the Cryptoporticus," where three large mural paintings have been identified as copies of Greek works, representations of the Canons of Aristotle. One shows Aristotle instructing Alexander the Great, and symbolizes Metaphysics, while the other two represent Practical Philosophy and the Fine Arts. A brief abstract is given of a report by AMEDEO MAIURI on the newly discovered "Casa dei Quattro Stili," a noble dwelling, with remains of precious frescoes and beautiful columns and capitals. The atrium is one of the finest in Pompeii. The house contains a small sanctuary, surpassing the average, dedicated to the worship of ancestors. In this house also a bidental has been discovered, a sort of lightning sign, of which very few examples are known. The small pit, above which a heap of earth had been piled, contained fragments of various utensils. On a stone placed over the pit, the word *fulgur* is inscribed

Lucera. — *The New Pallas* v, 1941, p. 126, announces that the Roman amphitheater at this place, believed to be the oldest one erected in honor of Augustus, is being restored. It is 131 m. long by 99 m. broad.

Ascoli Piceno. — During construction work, remains of Roman walls, including a black and white mosaic pavement, and the outer walls of a Nymphaeum, probably dating in the first century A.D. were discovered. A life-size portrait head, believed to be of Domitian, was also found (*The New Pallas* v, 1941, p. 33).

Ostia. — *The New Pallas* v, 1941, p. 30, reports the discovery of a large building with a court, colonnade, and mosaic decoration, identified by inscriptions and sculptures as the seat of the Seviri Augustales, the six highest priests consecrated to the worship of Augustus.

Taranto. — *The New Pallas* v, 1941, p. 115, announces that at Leporano, near the prehistoric site, two Roman villas have been uncovered,

which seem to have been joined by a colonnade running along the seashore. Colored mosaic pavements and a fish-pond have been found, among other objects associated with these villas.

Pojani, Albania.—At this site, the ancient Apollonia, a small tomb temple has been unearthed inside the Roman necropolis. It is rectangular, and has projecting members in front. Its manner of building, distinguished by alternate courses of rough stones and of bricks, has previously been found elsewhere in Apollonia. In the center of the cella is the cinerary urn. Remains of a Hellenistic house have also been found, and a bastion of the circular walls dating in the same period has been excavated (*The New Pallas* v, 1941, p. 121).

SCULPTURE

Rome.—*The New Pallas* v, 1941, pp. 33, 46, reports on recent discoveries of sculpture in Rome. During excavations at the foot of the Capitoline, a relief from a sarcophagus, of Italian marble, dating from the first half of the third century, 65.87 cm. high, was brought to light. It represents the myth of Diana and Endymion. The goddess is lost, but the right side of the relief shows the youth sleeping with his dog, and his flock, and surrounded by the personifications of Sleep and of the Carian Mount Latmos, where the myth places the scene. It is interesting not only for its artistic merit, but in that in some details it differs from the usual versions. On the south side of the Capitoline the head of a statue was uncovered. Though the upper part of the skull is missing, it is very impressive and must originally have been of great beauty. The subject is not identified, but it must belong in the period immediately preceding the Empire, and shows strong Hellenistic influence.

Portrait of Cleopatra.—There has recently been found at Teano, in the province of Naples, a large marble statue of Cleopatra (*The New Pallas* v, 1941, p. 43).

INSCRIPTIONS

Ostia.—*The New Pallas* v, 1941, p. 80, reports that further fragments of the Fasti have been found here, referring to the years 14 and 15 A.D. They differ from the Res Gestae Augusti in the number of Roman citizens, and give the date of the death of Augustus.

Sommacampagna, Province of Verona.—There have been discovered among the building materials of the church of Sant' Andrea, which, according to tradition, was erected on the site of a Roman temple, fragments of a votive altar with a dedicatory inscription. The deity is not named, but the founder and the two consuls in office at that time are given (*The New Pallas* v, 1941, p. 8).

Alt-Ofen, Hungary.—During the excavation of the military amphitheater, now nearly completed, an altar inscription has been found, which two brothers dedicated to the goddess Nemesis on the occasion of games at the beginning of the third century A.D. (*The New Pallas*, v, 1941, p. 8).

SPAIN

San Martin de Ampurias, Catalonia.—*The New Pallas*, v, 1941, pp. 8, 43, reports the resumption of excavations at this place, the site of the ancient Emporion. In the course of these excavations the foundation walls of the ancient Iberian settlement seem to have been found, and a Roman circus has been discovered. Of other finds, a marble statue of Dionysos, dating in the second century B.C., and Greek gold vessels and other vases of the sixth century B.C. are mentioned. The excavations will be continued, with the object of uncovering the Roman buildings of importance.

Mula, Murcia.—Remains of a Roman town dating from the second century A.D. have been found near Banes de Mula. A temple of which twelve marble columns have been excavated was consecrated to a goddess as yet unidentified (*The New Pallas* vi, 1942, p. 87).

Tamuda, near Tetuan.—A Roman camp with a burial ground has been discovered at this place. Many of the tomb-stones are well preserved. Evidence points to the existence of a Roman colony nearby (*The New Pallas* v, 1941, p. 83).

ROMAN GAUL

Lyons.—The excavations on the Colline de Fourvière have been resumed. They will be concentrated on a small building, probably an Odeon, near the great Roman amphitheater (*The New Pallas* v, 1941, p. 30).

Neuchâtel.—Excavations on the Wavre plateau, under the direction of S. Perret, have brought to light a Roman mausoleum, going back to the beginning of the Roman occupation. Fragments of vessels containing offerings and numerous bones have been found (*The New Pallas* v, 1941, p. 37).

Münsingen, Canton of Berne.—*The New Pallas* v, 1941, p. 49, reports the discovery at this place of a Roman villa, with fine mosaic pavements.

One of them consists of four panels with fishes and the head of Neptune. The adjacent bathroom, with frescoed walls, also contains a pavement of representations of fishes. No date is assigned.

Strassburg.—*The New Pallas* v, 1941, p. 62, reports that systematic excavations have been conducted at the northwest corner of the Roman camp at this site. They give a clear picture of the various stages of Roman wall building, and also throw some light upon the details of the history of the mediaeval buildings at this place, where a corn-loft of six stories stood from 1440 till 1550. The former suppositions about the camp are verified in the main.

Trèves.—In excavating for a cellar, a mosaic pavement, nearly intact, and probably dating in the second century, was found. It shows the nine Muses within a carpet and stair ornament, together with black stripes and white flowers (*The New Pallas* v, 1941, p. 82).

Cologne.—*The New Pallas* v, 1941, pp. 88, 118, reports discoveries of the Roman period near the Cathedral of Cologne. Several meters beneath the street level, remains of a large building, perhaps a palace, were found. It had a floor of mosaic, representing various motives of the mythology of Dionysos, with figures of plants and animals, in a very good state of preservation. It is attributed to the second century A.D., and is claimed to be the most beautiful mosaic found hitherto north of the Alps. Later, another mosaic pavement was found in this area, of equal artistic value, but unfortunately almost entirely destroyed.

ROMAN BRITAIN

Standlake, Oxon.—In *AJ.* xxii, 1942, pp. 202–214, J. S. P. Bradford describes an early Iron Age settlement, combining information from the researches of Stephen Stone (1857) and recent (1938–1941) examinations. Romano-British sherds are illustrated and analogies noted.

London.—In *AJ.* xxii, 1942, p. 218, R. P. Wright contributes a note on five inscribed pieces of leather, two unused pieces and three soles of shoes.

EARLY CHRISTIAN AND BYZANTINE

St. Peter in Gandhara.—Benjamin Rowland, Jr., in *GBA.* ser. vi, xxiii, 1943, pp. 65–70 (3 figs.) calls attention to a bronze statuette of St. Peter, recently found in Chārsada, in Northwest Frontier Province, India. Its present location is unknown, but its genuineness is beyond question. Its importance arises in being a unique specimen of Early Christian Art in India, and for the light that it throws on the study of Early Christian Art as a whole. It is a very crude but faithful copy in miniature of the bronze statue at St. Peter's in Rome, and its authenticity is further assured by comparison with similar bronzes in European museums and collections. The mounds of Chārsada, where it was found, mark the site of Buddhist monasteries, famous in their day, which were wiped out in the fifth century by the invasion of the White Huns, thus establishing a date of not later than that time for the statuette. Literary and archaeological sources reveal Roman and Byzantine influence, and the spread of Christianity in India. The statuette was probably brought to India by a trader from Syria, who had made the pilgrimage to Rome, and had bought it as a talisman at the portal of St. Peter's. It suggests that the date in the sixth century, usually given to the bronze statue in Rome, may have to be revised further back.

Early Russian Christian Amulets.—In *GBA.* ser. vi, xxiii, 1943, pp. 111–116 (3 figs.) Eugene De Savitsch publishes three Russian religious relics in his possession, which reveal in the early stages of Christianity in Russia a curious mixture of Christian and pre-Christian symbolism. Two of them are "protective" amulets, made by local craftsmen from Byzantine designs. One is a serpent medallion, or *zmeevik*, and belongs in the eleventh century, in which Christian and pre-Christian influences are almost equally divided. The obverse shows the Virgin, and gives a prayer for help; the reverse has a human head, from which twelve serpents issue. Obviously derived from Medusa, it symbolizes a head surrounded by evil spirits, and is common on Byzantine amulets. Another amulet, in the form of a triptych, shows St. Nacetas smiting the devil, while the Medusa appears on the reverse, in connection with St. Theodore Tiro repelling a serpent. This is dated in the twelfth century. The latest, of the thirteenth century, is a *panagiaria*, closed like a locket, for the carrying of the holy elements, or relics. On the outside of the cover is a representation of the Crucifixion, and on the inside, the Virgin. The outside of the back is plain, but inside there is a relief of the three angels appearing to Abraham, symbolizing the Holy Trinity.

Jacob Blessing Sons of Joseph.—In *GBA.* ser. vi, xxiii, 1943, pp. 193–208 (8 figs.) Wolfgang

STECHOW discusses the treatment of this subject in works of art from Early Christian times up to and including the painting by Rembrandt in Cassel. The interpretations of this story, taken from *Gen.* x, viii, 8–20, by Early Christian literature reveal two lines of thought—first, the decline of Judaism as represented by the elder son, and the rise of Christianity, symbolized by the younger, and second, the prophecy of the cross of Christ, shown by the crossing of Jacob's hands in laying them on his grandsons. These interpretations appear in the apocryphal *Letter of Barnabas*, written ca. 100 A.D., and by Tertullian in his *Treatise Concerning Baptism*, written a century later. A combination of these two sources plays a decisive part in mediaeval literature and art. The earliest representation to be discussed is a fourth century sarcophagus lid in the Catacombs of St. Callixtus, where little emphasis is laid on the crossing of Jacob's hands. Two centuries later, the representation in the *Vienna Genesis* is perhaps the earliest to stress the crossing of the hands. Other works of art of the same period are mentioned. By the twelfth century, the symbolism of the crossed hands has become very much emphasized, perhaps largely due to the influence of Abbot Suger of St. Denis. A fine enamel plaque of this period, in the Walters Art Gallery in Baltimore, is illustrated, showing the blessing of the two sons, with the arms very ostentatiously crossed, which is compared to crosses in the British and South Kensington Museums, four enamels in Vienna, and a number of stained glass windows in French cathedrals. By the sixteenth century, however, the crossing of the hands was being somewhat abandoned—a woodcut by Hans Holbein the Younger of 1526 does not show it, but suggests that the right hand is blessing the younger son. Tobias Stimmer's Picture Bible of 1576 (illustrated) shows, however, the crossed hands, with Jacob protesting violently. This protest of Jacob is carried to its climax in a painting by Guercino, formerly in a private collection in Paris, dated in 1620. The crossed hands occupy the very center of the composition, and Joseph is trying to hinder, if not actually stop, his father in the blessing of his children. Finally, Rembrandt in the painting referred to above, does not cross the hands, but suggests the blessing of the younger son with the right hand, by making him blond, and throwing a strong light on his countenance. Joseph does not protest, but affectionately supports his ailing father, while Asenath, the wife of Joseph, looks on, thus synthesizing the Christian and Jewish traditions.

Timgad.—*The New Pallas* vi, 1942, p. 87, reports that a Byzantine citadel is being unearthed at this place under the direction of CHARLES GODET. Among the stones used in its construction, many important materials of the Roman period, especially inscriptions, have been found.

MEDIAEVAL

Sursee, Canton of Lucerne.—During earthwork construction, a rich deposit was discovered. The principal find was a large church with three apses of the early mediaeval period, one of the oldest churches of the canton. Later, in the Middle Ages, it was probably transformed into a strong castle. A rich Bronze Age stratum was also found. The finds include bronze and stone tools and arms, and exceedingly beautiful pottery, including vases in a perfect state of preservation (*The New Pallas* v, 1941, p. 46).

Twelfth-Century Lintel.—In *BMMA.* N.S. i, 1943, pp. 248–250 (4 figs.) JAMES J. RORIMER publishes an important stone relief, undoubtedly a lintel supporting a pediment, of the late twelfth century, acquired by the Metropolitan Museum in 1939, and now on view at the Cloisters, representing the Entombment, and the Holy Women at the Sepulcher. The Entombment shows Christ being lowered into a sarcophagus by four men, two of whom may be Joseph of Arimathea and Nicodemus. The representation of the Holy Women follows closely the story as given in the Gospel of St. Mark. The technique shows a similarity to some of the later sculpture at Chartres, but the provenance, which is alleged to be near Chartres, cannot unfortunately be confirmed. Doubt has been cast upon its authenticity, but a study with ultraviolet rays shows it to be genuine.

Master of the Encarnación.—CHANDLER R. POST, in *GBA.* ser. vi, xxiii, 1943, pp. 153–160 (5 figs.), publishes a triptych of the fifteenth century from Valencia in the Prado, painted by a Flemish artist, strongly influenced by Valencia, representing the Crucifixion in its central panel. He associates with it as by the same hand another Crucifixion, formerly in the Traumann collection at Madrid, and tentatively suggests as the name of the artist Louis Alimbrot, a native of Bruges and a disciple of the Van Eycks, who is known to have resided at Valencia from 1439 until his death in 1460.

Master of St. Sebastian.—In *GBA.* ser. vi, xxii, 1942, pp. 135–148 (10 figs.) CHARLES STERLING continues his studies of fifteenth century Provençal artists. The subject of this paper receives his name from the four panels of the legend of St. Sebastian, now in the John G. Johnson collection in Philadelphia. Besides the martyrdom, the panels depict his destruction of pagan idols, his being ministered to by St. Irene, and his death. They were undoubtedly sections of an altarpiece. A Pietà in the collection of Hulin de Loo has been already recognized as by the same hand, while the present writer adds four others, two of which are painted on opposite sides of the same panel, now in the Musée Calbet in Avignon. The third is a Marriage of the Virgin in Brussels, and the fourth, an Adoration of the Child in the Louvre. The painter shows familiarity with Flemish and Burgundian art, and was not unaware of what was being done in Northern Italy. The presence of the Colosseum and the Arch of Constantine in one of the St. Sebastian panels suggests that he may have visited Rome, but his whole approach is Provençal in character. The technique indicates the last years of the fifteenth century. From documentary evidence we know of an artist named Josse Lieferinxe, who came to Provence from Picardy, whose life, as reconstructed from notarial and other records, seems to fit well with the paintings brought together. He first appears in Marseilles in 1493, but he may have worked in Avignon before that date, as we know that his wife was the daughter of an artist from Dijon who worked in that city, hence the Burgundian influence. In 1497 he is found in association at Marseilles with one Bernardino Simondi from Piedmont,—hence his familiarity with North Italian tendencies. The St. Sebastian panels and the de Loo Pietà may well have been an altarpiece ordered from him in 1497, and completed in 1499, for the church of Notre-Dame des-Accoules at Marseilles. This altarpiece is also attested by contemporary records as having been much admired, as it is mentioned as a model for at least one other church order. Lieferinxe is known to have died between 1505 and 1508, and was probably still relatively young at his death. Although it cannot be definitely proven that the Master of St. Sebastian is Josse Lieferinxe, the only other possibility is a certain Jean Changenet, of Dijon, his father-in-law, who worked in Avignon from 1485 till his death in 1493, but no painting by him can be identified. The article ends with a plea for further careful study of the all too greatly neglected field of mediaeval art in Provence.

Late Gothic Sculpture.—W. R. VALENTINER publishes two statues in Detroit, one, of the Mourning Virgin, the other of St. John, that originally stood at the sides of a crucifix. They are of South German workmanship, and are dated in the early sixteenth century, when Gothic influence was still strong in Northern Europe. They are closely related to the work of the Bavarian Georg Lederer, if not by his hand. This late Gothic sculpture was greatly admired in the later Baroque period, and the writer suggests that it should be called Late Gothic Baroque instead of the more usual term Northern Renaissance (*Bull. Detroit Inst. Arts* xxii, pp. 67–70; 2 figs.).

RENAISSANCE

Attributions to Bramante.—In an article published posthumously, the late GEORGE MARTIN RICHTER, in *GBA.* ser. vi, xxiii, 1943, pp. 1–20 (16 figs.), sees in the Barberini panels, now in Boston and New York, the work of Fra Carnevale, who was, according to Vasari, closely studied by Bramante (to whom indeed, Swarzenski attributes them). Richter points out strong similarities in detail between them and the paintings of the Miracles of San Bernardino in Perugia, painted in 1473, which also show the influence of Luciano Laurana, Bramante's teacher. He attributes four of these eight paintings to Bramante, and of the others, two as designed by Bramante and executed by another master, possibly Bartolomeo Caporale, and two to Pintoricchio. On the basis of these attributions, he assigns to Bramante two other panels, one of a Youth Saluting a King, in the Fogg Museum, and one of the Martyrdom of St. Bosone, in a dealer's possession, as well as drawings in the Ashmolean Museum and the Uffizi. The attribution of these paintings in Perugia is in no way incompatible with what we know of Bramante's life and activities, into which Richter enters into some detail.

Antonello Gagini.—This sculptor, the greatest figure produced in Sicily by the Renaissance, has not received the attention that is his due, probably because most of his work has never left his native island, or the adjacent region of Calabria. The acquisition of two important examples of his sculpture by American museums prompts WILLIAM M. MILLIKEN, in *GBA.* ser. vi, xxiii,

1943, pp. 209–218 (9 figs.) to make a detailed study of the development of his style. He was born in Palermo in 1478, and died there in 1536, and except for ten years at Messina (1498–1508) lived there all of his life. His father, Domenico Gagini, was also a sculptor; he came from Northern Italy, and settled first in Genoa, but was soon thereafter in Naples, where he was associated with Francesco Laurana, but was in Sicily as early as 1463. Antonello's earliest datable work, the Madonna della Scala in the Palermo Cathedral, is dated in 1503, and shows Lombard influence derived from his father. Through a series of dated works, the evolution of his style into the true manner of the High Renaissance can be distinctly traced. Of the two statues in America, a St. Catherine in St. Louis is the earlier. Its closest analogies are the Santa Cita altarpiece in Palermo, dated in 1517, and a statue of St. James in Trapani, dated in 1522; it is closer in feeling to the latter than to the former, and is therefore assigned to the early twenties. The second example, a St. Margaret in Cleveland, is later, and in the middle to late twenties. The work closest to it is a St. Mary Magdalene at Alcamo, which is usually considered to be his finest work. The writer concludes with the statement that "Antonello Gagini sums up the High Renaissance in the island of Sicily."

AMERICA

Prehistoric Fishweir.—In 1913, when excavating for a subway under Boylston Street in Boston, a number of sharpened stakes were discovered, which were identified by the late C. C. Willoughby (in *Am. Anthropologist* n.s., xxix, pp. 105–108) as part of a fishweir. In 1939, in excavations for the foundations of a new office building for the New England Mutual Life Insurance Co., also on Boylston Street (between Berkeley and Clarendon Streets), more of these stakes came to light. A scientific study of them was made by FREDERICK JOHNSON, Curator of the Robert S. Peabody Foundation for Archaeology at Andover, who reports briefly on his findings in *Proceedings of the Bostonian Soc.*, 1943, pp. 26–32 (pl.). In an area of about two acres, about 65,000 stakes were discovered, revealing the existence of a structure of considerable size. The tops of the stakes were thirty one feet below the present street level, and thirteen feet below present low tide, indicating great antiquity. Wattling, consisting of brushwood laid horizontally between the stakes, was also found, yielding evidence that points to the possibility of several reconstructions or repairs, covering a long period of time, during which this area (then under water) was gradually being filled with silt. The woods used for most of the stakes were sassafras, beech, alder and oak, while for the wattling various other woods (enumerated) were employed. The method used by modern science to preserve the wood is described, and an attempt is made to assign a date to the weir. For this the stratigraphic evidence is all that is available. It is postglacial, and only approximate dates can be assigned; but it is suggested that it was built some time between 1700 and 1500 B.C., and abandoned after 1400. This proves the antiquity of man in the Boston area, and suggests that in those early times there must have been a large community residing there, who were not necessarily the original settlers, but had been preceded by smaller groups.

Middle American Archaeology.—*BRISD.* xxix, 1941, nos. 1, 2 (75 pp., 73 figs.) is devoted to two important articles on this subject. The first (pp. 1–43, figs. 1–44) by ALFRED M. TOZZER, deals with the Greater Cultures. This includes Central Mexico (Archaic, Toltec, Aztec), Yucatan, and Lower Guatemala (Maya). The second article, by SAMUEL K. LOTHROP, takes up the Lesser Cultures, including Eastern Mexico (Huaxtec, Totanac, and Ohneca), Western Mexico (Tarascan), Southern Mexico (Zapotec, Mixtec), Highland Guatemala (Maya, Pipil), Honduras and Salvador (Maya, Lenca, and Pre-Lenca), Nicaragua and Costa Rica (Chorotega, Guetar) and Panama (Chiriquí, Veraguas, and Coclé). The illustrations include not only objects in Providence, but magnificent photographs of a number of the most famous sites, and objects from a large number of other museums and collections.

Classic Influence in Mexican Architecture.—In *The Art Bulletin* xxiv, 1942, pp. 311–325, JOHN MCANDREW, in collaboration with MANUEL TOUSSAINT, discusses a small group of Mexican churches distinct from the typical Gothic and Plateresque types. As in Spain, "the exuberant Plateresque was accompanied . . . by works of more sober and far more 'correct' classical character." The basilican churches of the Franciscan convents of Tecali and Zacatlán are the outstanding examples of Purist architecture. The Purist churches are "of the simple, columnar basilica type, with simple façades containing classical portals and flanking bell towers." Many of the forms are clearly based on drawings from early books on

classical architecture, but often the native architect had trouble in translating the drawing into stone.

Franciscan Missions in New Mexico and California.—GEORGE KUBLER, in *GBA*. ser. vi, xxiii, 1943, pp. 39–48 (10 figs.) points out the essential differences of mission architecture in New Mexico and California, although in both places the Franciscan order was responsible. After a very complete description of the two types, he explains the reasons as being (1) the existence in New Mexico of Indians of an urban-dwelling type, while in California the Indians had to be brought by the friars into villages, created for them, and (2) the influence of the Jesuits in Mexico and South America, who created a quasi-military discipline among their people, upon the Franciscan missionaries in California.

FAR EAST

Siam.—*Smithsonian Inst. War Background Studies* 8, 1943 (18 pp., 8 pls., map) is devoted to an essay by H. G. DEIGNAN, entitled, "Siam, Land of Free Men." Of all the peoples who inhabited the great peninsula between India and China, only the Siamese (or Thai) have preserved their independence from European domination. The article starts with a description of the geography of Thailand, in four divisions, Northern, Central, Eastern and Peninsular. The climate is that typical of Southeastern Asia. Archaeological evidence tells us little of the first human occupants of the country,—the earliest remains are celts, found in the Peninsular area, and the Eastern plateau, which are attributed to the later Neolithic period, but much exploration remains to be done, and evidence of earlier occupation may yet be obtained. Among the mountains in the Peninsula, peoples of Negrito stock exist in small groups, believed to be descendants of the Neolithic races, but most of the inhabitants are either of Mongolian, Tibeto-Burman, or Cambodian stock. These last are the true Thai or Siamese,—the word Thai means "free men." In prehistoric times (i.e., before the fourteenth century A.D.) the country was inhabited by primitive people of Mon-Khmer (Mongolian-Cambodian) stock, among whom were groups of more civilized Cambodians, who had brought to the country the religion and customs of India, and through whom the empire of Cambodia claimed suzerainty over the region. By the fourteenth century this was repudiated, and an independent state formed. The most ancient settlement known was Sukhothai, two hundred miles North of Bangkok, and was a flourishing village as early as 300 B.C. Two centuries later, the city of Sawankhalok, about twenty miles further north, was founded, and made the capital of the country. The rest of the essay deals with the subsequent history of Thailand, and with the modern condition of the country.

Cauldron of King Ch'êng.—In *GBA*. ser. vi, xxiii, 1943, pp. 181–182 (2 figs.) LAURENCE C. S. SICKMAN publishes a magnificent bronze cauldron of rectangular shape, standing on four solid legs, recently acquired by the Nelson Gallery at Kansas City. It is inscribed on its interior side wall with the name of King Ch'êng, the third ruler of the Chou Dynasty, who ruled in China from 1115 to 1079 B.C. The Chou emperors overthrew the Shang Dynasty, according to the official chronology, in 1122 B.C. They took over the already highly developed art of the Shang, and, without unduly changing it, adapted it to suit their own taste. The conclusion is reached that "a militant and relatively rude class, inheriting a culture superior to its own—they improve with their own peculiar skill the old art and make it more impressive."

Tokyo.—*The New Pallas* vi, 1942, p. 77, tells of the opening of the "first Art Exhibition of the East Asiatic Wide Space" containing some hundreds of Japanese paintings, including examples by the fallen Ikawura, with representations of struggles, and of the life of the aborigines in the Pacific. The exhibition also included sculptures, ceramics, textiles, household utensils, weapons and toys from the East Asiatic countries, including New Guinea, India, and Manchukuo. Similar exhibitions are to held in Thailand, in the Philippines, in Indo-China and in occupied China.

Care of the Teeth in China.—The *New York Herald Tribune* for July 25, 1943, quotes an article from the *Journal of the American Dental Association*, stating that as far back as 2000 B.C. the Chinese were using a crude form of dentifrice, made into a paste from the powdered bones of small animals. It further states that the Arabs in the Middle Ages attached great importance to the cleanliness of the teeth.

U.S.S.R.

1. **Karelo-Finnish S.S.R.**—During 1940, the Institute for the History of Material Culture (IIMK) cooperated with the Karelian Research

Institute of Culture and the Karelian State Museum. According to N. N. GURINA ("Regultaty rabot arkheologicheskoĭ ekspeditsii v Karelo-Finskuiu S.S.R. v 1940 g.", *Kratkie Soobshcheniia*, No. 9, pp. 114-140, 1941), the season's work was concentrated in the Kemi and Olomets Regions, where no Neolithic nor early metal sites had been reported until 1937. Three sites were found on the left bank of the Kemi River; two yielded many flint and quartz implements and belonged to the "Arctic Paleolithic" period. The third site, containing retouched knife-like flint laminae and scrapers and some quartzite implements, included a quantity of thin-walled pottery decorated with small slanting, comb stamped ornament. The general character of the inventory permitted Gurina to attribute it to a period not earlier than the end of the Bronze Age.

On Iskra Collective Farm near Tuksinsk in the Olonets Region a site was located in a thick peat bed lying between two argillaceous strata. The finds consisted of large polished implements, closely related to the types known from Finnish sites, but did not include pottery nor bone. A rich early Neolithic site was found upon the same Collective Farm. The inventories included a quantity of thick-walled, pointed based pottery, decorated with large conical pits, occasionally supplemented by comb drawn ornament in the form of diagonal or horizontal lines. Large polished slate hoes ("pickaxes") of Karelian type were also found. The site was not completely excavated, but seemed to be of great interest because of a previously reported find of a wooden boat in a similar peat formation nearby.

While many tumuli attributed to the tenth-twelfth centuries had been excavated previously along the Olonets River, these were the first Neolithic sites found in this area.

Important finds were also made at Orov-Navolok Cape on Lake Onega, 35 km. south of Povenets. This settlement had been first located in 1939 on a small sandy inlet protected by the promontory, 12 m. above the present level of Lake Onega where Neolithic pit-and-comb pottery was found in association with metal objects, a copper knife, and a copper or bronze lamina.

To judge by the abundance of entirely homogeneous pottery and the presence of dwelling complexes, this was a permanent settlement rather than a mere encampment.

An excavated dwelling consisted of an oval pit in the shape of an inverted truncated cone, 1.10–1.50 m. in diameter at the bottom, 2.25–3.0 m. in diameter along the rim. The fire platform, located on the edge of the pit, was accompanied by a broken pot. This site was of the same type as No. 9 at Voi-Navolok, excavated by Gurina in 1938–1939. It could be restored in the form of a conical tent set over a pit of much smaller diameter.

In the southern part of the settlement an atelier was found, including two flat, round stones bearing clear impressions of strokes, and many fragments of quartz and hornblende. The inventory of the settlement consisted of many fragments of pointed based, thick-walled, well-fired ware made with the admixture of coarse sand. The entire surface of the pots was decorated with oval or round pits which in combination with comb-stamped lines formed complex designs consisting of descending triangles or rhomboidal motifs. Small quartz and hornblende implements predominated. There are very few flint implements, and only one large polished implement, a large grooved chisel.

This phenomenon is explained by the presence on the site of metal objects. Subsequent to the discovery of the bronze knife and lamina during the 1939 excavations, thirteen bronze or copper objects were brought to light, including two fishhooks of a type closely reminiscent of the Glazkovokoe Stage burials from Siberia. The association of metal objects with purely Neolithic pottery is of great interest. Until this time, despite the presence of many Neolithic sites in Karelia and other northern areas, no early Metal Age sites have been found, although there have been individual finds of early Bronze Age objects. Two attempts had been made to explain the resulting hiatus of approximately 2,000 years. R. Sernander and A. Tallgren (1913) suggested that the northern regions were depopulated as a result of migrations to the south, caused by a secular climatic decline followed by a new colonization beginning with the ninth or tenth century. The other explanation, advanced by A. Brögger (1926) and A. Schmidt (1933) was that the Karelians continued using stone implements until a very late period and that many sites described as Neolithic should be attributed to a much later period. A. IA. Briusov (1940) suggested that the lack of early Metal Age sites was entirely due to the difficulties of finding them. His view is accepted as correct by Gurina, who concludes that: (1) the evolution of Karelian society was con-

tinuous; (2) the local physico-geographical conditions tended to preserve the primitive forms of fishing and hunting among the Karelians after the adoption of metal implements; (3) the Orov-Navolok finds necessitate re-examination of many Karelian sites previously classed as Neolithic on the possibility that they belong to the Metal Ages.

The author suggests that the Orov-Navolok site should be dated between 1200–800 B.C., i.e., earlier than the Bronze atelier found by A. Briusov in 1930–1932 at Tomitsa near Petrozavodsk.

An early Iron Age site was also found nearby in the sandy talus on Orov Cape. The cultural stratum, 20 cm. thick, included sherds of comb-ornamented and plain pottery of clay mixed with asbestos, quartz flakes, and a primitive triangular forge consisting of thick granite slabs set on edge with remains of iron slag and of the clay lining. Iron slag in association with asbestos-containing pottery had been previously described by Briusov (1940, pp. 226–227, 238–243) from Tomitsa and Nadvoitsa.

(References: R. Sernander, "Postglaziale Klimaverschlechtung," *Ebert-Reallexikon der Vorgeschichte;* A Tallgren, *Djurhuvudyxov av brons fran östra Ryssland*, Finskt Museum, 1913; A. Brögger, *Kulturgeschichte des norwegischen Altertums*, Oslo, 1926; A. Schmidt, "O Khronologii doklassovogo obshchestva," *Problemy Istorii Materialnoi Kultury*, Nos. 7–8, 1933; A. IA. Briusov, *Istoriia drevnei Karelii*, Moscow, and *Izdanie Gosudarstvennogo Istoricheskogo Muzeia*, 1940.)

Hoard at Poltava.—*The New Pallas* vi, 1942, p. 75, reports that in a field at Poltava in the Ukraine an earthenware vessel was found, containing more than eight hundred Roman silver coins of the time of Julius Caesar.

Siberian Gold Treasure.—ALFRED SALMONY, in *GBA*. ser. vi, xxiii, 1943, pp. 71–82 (9 figs.) speaks of the work done by Soviet archaeologists in the ancient burial grounds of Southern Siberia. Particular mention is made of the campaigns at Noin Ula in 1924–25, and Pazyryk in 1929. The article, however, is devoted to a study and publication of the finds from Kopeny on the left bank of the Upper Yenisei. Although accounts of these excavations have appeared in Russian, and been summarized in some English and American periodicals (e.g. Field and Prostov in *AJSL*. lvii, 1940, pp. 327–329), this is the first detailed account, with illustrations, to appear in English. This cemetery, discovered in 1939, is of two periods. The earlier graves belong to the Tashtyk civilization, dated from the second to the fourth century A.D., and add little to what had previously been known. The later group, dating from the seventh to the ninth century, "is certain to become one of the cornerstones in the history of art in the Eurasian steppes." This region at that time had fallen to the Kirghiz, as is established by incised inscriptions on two gold vases, in the runic letters of the Turkish alphabet. These vases are published, but as the inscriptions are on the bottoms, they do not appear. The finds were from two large mounds, or *Kurgans*, numbered 2 and 6. The richest booty came from 2, which yielded the vases mentioned above, on a silver-gilt tray, and two gold jugs of a native shape, beautifully decorated in relief and appliqué. Influence of the Turks, and particularly of China (T'ang Dynasty) appear on these four gold vases. A date in the eighth century is suggested. No. 6 yielded an engraved gold dish, again showing the influence of T'ang design, but very surely the work of a local craftsman. But the principal objects from this mound were of bronze. Four sets of ornaments, to be sewn on saddle cloths, were found, two of which are published. They depict a central figure of a mounted huntsman, hunting lions, but a number of other animals are represented, while scenery is suggested by appliqués showing mountains and clouds. There are slight variations in each set, but the design is essentially the same on all. Here some Sasanian influence is apparent, as well as Chinese (the horses are of the Mongolian breed). Thirteen cast pendants for horse trappings, of gilded bronze, all of the same model (heart-shaped, decorated with galloping lions) were found, all showing definite Chinese influence. Thirteen other pendants, of plain bronze, decorated with an openwork design ending in feline heads, are of a type not previously encountered, but which throw light on the famous Ordos bronzes, which now must be dated in the eighth century. The whole yield from Kopeny shows that the art of the Yenisei in the Turkish period was full of heterogeneous elements, with China predominating. It belongs to the migration period which hitherto has been almost unrepresented in Siberia.

Uzbek S.S.R.—The ruins of a large, medieval settlement and ancient burial grounds dating back to the second and third centuries were discovered recently on the construction site of the Farkhad Hydro electric Station. Several dozen tombs have been opened, and numerous ornaments of Syrian, Iranian and Chinese origin revealed. (From *Soviet Information Bulletin* No. 83, p. 8, July 9, 1943).

BOOK REVIEWS

PRESARGONIC TEMPLES IN THE DIYALA REGION, by *Pinhas Delougaz* and *Seton Lloyd*. With chapters by *Henri Frankfort* and *Thorkild Jacobsen*. The University of Chicago. Oriental Institute Publications. Vol. LVIII. Pp. xvii+320, figs. 213, pls. 28, map, chart. The University of Chicago Press. Chicago, 1942. $15.00.

This is a painstaking study which gives us a clear idea of the development of the Sumerian temple. The excavators were fortunate in finding a complete historical sequence of rebuilt temples and were equal to the task, so that by a technique of unsurpassable accuracy and sound reasoning they were able to trace the development step by step. For one temple, for instance, ten strata, twenty-four occupational levels and even more floors could be distinguished. The sites are Khafajah, Tell Asmar and Tell Agrab in the Diyala region, which is in central Mesopotamia at the point where the Euphrates and the Tigris come closest. Preliminary reports have made known the chief facts, but this final publication adds a wealth of information and makes the development clear. Many photographs, schematic sections and reconstructions of interiors and exteriors help the reader to understand the extremely complex stratification and convince him of the soundness of the work. Catalogues of the objects found in the temples are added, because many are of importance in dating the levels; some conspicuous pieces are illustrated, such as a female statuette of the Jemdat Nasr period, a cow with attached beard, and a copper quadriga. The inscriptions, dealt with by Jacobsen, are few and difficult to interpret.

The most interesting temple is the Sin temple at Khafajah, which can be traced from the Jemdat Nasr to the third Early Dynastic period. Each stratum is different in some degree and shows new features which often present interesting problems. To cite a few examples: temple I had a plain wall against which a structure was built, apparently an altar; in temple II the wall shows a niche between two grooves. Does this mean the introduction of Andrae's "Erscheinungstur," or of a cult image? Temple IV is raised by a terrace. It is only one meter high, but the question arises about its relationship with higher podia and with the Zikkurat. The terrace disappears in temple V, but is found again in VI. The plan is changed. Whereas the earlier temples had a forecourt to which some subsidiary structures were added in haphazard fashion, a unification has taken place and temple and subsidiary rooms are grouped on the three sides of a central courtyard. It is the new organization which we see emerging with the beginning of the Early Dynastic period (cf. *JAOS*. lviii, 1938, pp. 140 ff.). Plano-convex bricks are now used and the entrance is flanked by two towers. The beginning of the second Early Dynastic period is once more marked by innovations, e.g. the foundations are laid in trenches, the outside walls have buttresses, and a column is put into the wide entrance of one of the rooms. In IX, "offering tables" are introduced which separate the altar from the remainder of the room. Temple X has become a multiple temple, with at least four ritual chambers.

The Nintu temple at Khafajah belongs to the Early Dynastic period, during which it was rebuilt seven times. It consists of two courtyards, one having a single cult room, the other having two facing each other. These cult rooms have no anterooms, as have most of the Sin temples. It is worth noticing that the orientation of all three shrines is different. Interesting are altars with fragments of statuary imbedded in the brickwork, or altars made of boxes packed with clay and mud-brick fragments; a steatite vase was found inside one of these.

Nine or ten periods can be distinguished in a small shrine at Khafajah, which likewise belongs to the Early Dynastic period. It consisted first of one single room. Later, a vestibule was added, which disappeared in the sixth period in which a courtyard was added with a room at the opposite side. Another one-room shrine is datable in the second part of the third Early Dynastic period. The Temple Oval can now be dated: the first period belongs to the second stage of the Early Dynastic period, the second period to the first half of the third stage and the third period to its second half and a little beyond.

The Abu temple at Tell Asmar was built at the end of the Jemdat Nasr period and lasted to the age of Sargon, being rebuilt nine times and undergoing considerable changes. The earliest curiously irregular shrine was superseded by a

rectangular one, the anterooms of which were altered repeatedly in later phases. In the second stage of the Early Dynastic period an entirely new plan was adopted, the "Square Temple," consisting of a central hall with rooms around all four sides, three of which were shrines. It is maintained that there is no indication that the central room was open to the sky. If this opinion is correct, we must assume that an open court was covered over in this case, because the plan is the same as that of the many buildings in Mesopotamia for which an open courtyard is generally assumed. The reviewer would propose that a different term be chosen for such a covered room, rather than court, which is used in the text. Interesting is the change in orientation. The altar of the earliest shrine is oriented approximately to the East, those of the "Archaic Shrines" to the West, one of the "Square Temple" to the East again and the two others to the North. The plan was changed once more and the "Single Shrine" temple succeeded.

The Shara temple at Tell Agrab belongs to the Early Dynastic period. Only the latest phase, and that only partially, could be excavated, the earlier phases being but slightly touched. The temple was probably a large square, with sides about 60 m. long and containing several sub-units grouped around courtyards. The excavated main sanctuary was surrounded by rooms on all sides, so that it must have been lighted by a clerestory. Among other finds are egg-shells about the size of those of a hen, fish-bones and part of a foot of a nearly life-size copper statue which might have stood in the niche of the cult room.

In a summarizing chapter, Frankfort enumerates features of the type of the Early Dynastic temple and discusses a number of special problems, such as the altar, the "offering tables," the terrace, the staircase, the orientation. He considers as the original type underlying all variations that which has the entrance at the end of one of the long sides and the altar farthest at the short side and he is thus in full agreement with the reviewer, who has called this type the "around the corner type" (*JAOS*. lx, 1940. pp. 151 ff.). He further discusses the development of the temple in Mesopotamia and emphasizes the continuity from the temples at Tepe Gawra through those of Uruk and of Early Dynastic times to the later Babylonian type. The resemblance between the type of Uruk and that of the early Sin temples at Khafajah is so striking, indeed, that a derivation of the latter from the former must be assumed. The reviewer thinks, however, that the changes undergone by the Sin temple in the later stages are not a logical development, but are due to the influence of the courtyard type, the earlier existence of which is proved at least for the private house by buildings at Tepe Gawra XV and at Radau Shergi (*loc. cit.* p. 170). The addition of a courtyard to the Uruk type in Sin temple I would thus not mean the first emergence of a new feature, but the fusion of two types which had existed independently before. In the course of the development the originally free standing block of the Uruk type is pushed to the wall, so to speak, reduced by one third of its width (in VI, VII, VIII, IX) and becomes subordinated to the court in the center which organizes the whole precinct; the shrine is no longer in the center, but considerably off center.

The volume contains two more important items: first, a new proposal of nomenclature. The latter part of the Uruk period and the Jemdat Nasr period are taken together and called the *Proto-literate period*, because the first stages of writing were accomplished during it. Correspondingly the time from Entemena to Lugalzagesi are called the *Proto-imperial period*. Second, Delougaz makes the attempt to compute absolute dates for the early Mesopotamian periods. He observes that the mud plaster of Sin temple VII was renewed sixteen times; by assuming that a new plastering took place every year and by measuring the rise of the floor level at a place where it could be correlated with the plaster, he concludes that the floor level rose approximately twelve cm. in sixteen years. Then by measuring the various strata he reaches the conclusion that the Early Dynastic period lasted approximately 750 years. That would mean that the Proto-imperial period ended about 2600 B.C. according to Jacobsen's chronology, or ca. 2325 according to Smith, or ca. 2360 according to Albright (*BASOR*. 88, 1942, p. 32); the Early Dynastic III period would end at ca. 2700, or 2425, or 2460. Early Dynastic I would begin ca. 3450, or 3175, or 3210, and the Proto-literate period 3850, or 3575, or 3610. The reviewer acknowledges the ingenuity of the reasoning, but he must confess that he finds the length of time excessive. The development of the Early Dynastic style would have been extremely slow, if it took 850 years to reach the level of the Sargonic style. The Tell Halaf period would likewise fall very early, if ca. 3600

is assumed for the beginning of the Proto-literate style. A more serious objection than these subjective arguments is the synchronization with Egypt. The strong influence of the Jemdat Nasr style with the latest phase of predynastic art suggests a later end of the Jemdat Nasr period than 3175, according to the shortest chronology. Albright's date, the thirtieth century, fits much better. It is to be hoped that a complete sequence of the prehistoric periods from the Ice age and their relative lengths can be elaborated in the future and that absolute dates can be established for them on geological grounds as in Northern Europe.

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ALALAKH AND CHRONOLOGY, by *Sidney Smith*. Pp. iv+52. London, Luzac, 1940. 5 sh.

The distinguished Keeper of the Department of Egyptian and Assyrian Antiquities in the British Museum undertakes in this brochure to demonstrate by a combination of documentary and archaeological data that the time-honored dates for the age of Hammurabi and preceding periods are much too high. The documentary evidence comes partly from Mari on the middle Euphrates, where M. Parrot has since 1935 discovered some 20,000 tablets from the age of Hammurabi, and partly from Alalakh (Tell 'Aṭshânah, east of Antioch on the lower Orontes), where Sir Leonard Woolley excavated (in 1939) some 150 tablets from the same period. The archaeological evidence is derived mainly from a comparison of the stratification of Chager Bazar in northern Mesopotamia with that of Alalakh.

In 1938 the reviewer proposed that the date of Hammurabi be lowered from the second half of the twentieth century B.C., then the lowest date given this king by any competent Assyriologists, to ca. 1870–1830 B.C., pointing out that this reduction would have great advantage for comparative archaeology, increasingly troubled by apparent time-lag as one moved westward from Babylonia. The following year Sidney Smith pointed out that this new date "is not only not too low, but may not be low enough." In 1940 the reviewer reduced his chronology by three-quarters of a century, and simultaneously Sidney Smith, in the brochure before us, arrived at the same conclusion, fixed to the year by use of the evidence provided by the date for movements of Venus in the reign of 'Ammi-ṣaduqa of Babylonia. The new date (see the late Brigadier-General Sewell's observations on pp. 26 f.) was 1792–1750 B.C. It soon became clear, however, that even this low date, bolstered by astronomical data, was probably too high. Meanwhile, it was reported that Professor Arno Poebel of the University of Chicago was about to publish a preliminary account of the Khorsabad List of Assyrian kings, discovered by the Oriental Institute in 1933, but hitherto inaccessible to scholarship. Until its appearance, publication of this review seemed premature. Now we have an elaborate description and discussion of the Khorsabad List by Poebel in the *Journal of Near Eastern Studies* 1942, pp. 247–306, 460–492; 1943, pp. 56–90. Since this list is complete, with regnal years, back into the fifteenth century and since there are only two uncertain reigns after the eighteenth century B.C., the whole situation is at once transformed. Though some minor corrections may have to be made, there can be no reasonable doubt that we must lower the date of Hammurabi by another 64 years (in agreement with the Venus cycle, which repeats itself every 275 years). Schoch and Fotheringham (cf. Langdon and Fotheringham, *The Venus Tablets of Ammizaduga* 1928, p. 54) computed five alternative dates satisfying the conditions of the documents ('Ammi-ṣaduqa: 1977–, 1921–, 1857–, 1809–, and 1801 B.C.). The accession of Hammurabi falls just 146 years before that of 'Ammi-ṣaduqa.

When we try to combine our new data, trouble arises. Poebel undertakes to harmonize all the long-range datings of the Assyrian kings, which are now quite numerous and which purport to give the lapse of time between an event (generally a building operation) in an earlier king's reign and the time of the inscription which contains the dating. It is true that most of them fit (with a few assumptions) into the scheme of the Khorsabad List, but others remain palpably too long. Poebel's attempt to harmonize all these datings leads him to a solution which attributes zero years to each of the two kings of the fifteenth century whose regnal years are broken off in the Khorsabad List. One of the kings in question was indeed ephemeral, but the other, Asshur-rabi I, was the son and father of kings. Quite aside from the inherent improbability of Poebel's solution is the fact that the end of the First Dynasty of Babylon would fall somewhere around 1508 B.C. (possibly a few years earlier, depending on the exact date of Shamshi-Adad I's death and the precise duration of Samsu-ditana's reign, toward

the end of which the Hittites sacked Babylon). But this date would fall, on any serious computation, during the reign of Tuthmosis I or II (i.e., between 1525 and 1490 B.C., according to the most probable chronology, that of Borchardt revised by Edgerton, *AJSL.* liii, 1937, pp. 188–197, or between 1525 and 1504 according to the latest chronology, that of Steindorff and Seele, *When Egypt Ruled the East* 1942, p. 274), when Egypt was already in nominal control of Syria as far as the Euphrates. It is incredible that the Egyptian inscriptions would fail to mention the Hittites at a time when, under Mursilis I, the latter had conquered Syria and western Mesopotamia.

If we, accordingly, give up Poebel's extremely low date and allow some duration to the reigns of the two kings whose regnal years are broken off in the Khorsabad List, it becomes possible to escape the dilemma just outlined. By adding approximately 22 years to his figures we avert a clash between Egyptian and Hittite chronology at the same time that we obtain a date which accords with the Venus cycle; for details see my treatment of the subject in *BASOR.* 88, pp. 28 ff. Of course, the resulting date is not certain, but it does seem very probable. We must remember that the later chronology of the Khorsabad List agrees perfectly with the most probable reconstruction of Egyptian chronology. Asshuruballit began to reign toward the end of the reign of Akhenaten, as we know from contemporary documents; his reign falls into the years 1362–1327 according to the new data, whereas the reign of Akhenaten may be dated 1377–1360 B.C. (cf. *JEA.* 1938, p. 193, n.8). We need, therefore, scarcely hesitate to follow the guidance of the Khorsabad List another three or four centuries back. For a detailed table of the resulting chronology we may refer to p. 32 of the reviewer's treatment just mentioned. Here we may limit ourselves to a few dates of general archaeological significance. The Mari Age falls about 1730–1700 B.C. and was followed immediately by the period of the First Dynasty of Babylon, cir. 1700–1530 B.C. Hammurabi's reign may be dated 1728–1676 B.C., and the famous Code of Hammurabi was set up about 1690 B.C. The Larsa period falls about 1960–1700 and Ur III about 2070–1960. The Cappadocian Tablets belong to the period between ca. 1850–1775 B.C. Going back still farther, we may now date the Accad period about 2330–2180 (beginning it with Sargon's conquest of all Babylonia), which represents a drop of half a millennium from the dates generally current only two decades ago (e.g., in the *Cambridge Ancient History*). The Royal Tombs of Ur can scarcely be earlier than ca. 2500 B.C. and they may be a little later. Any Aegean archaeologist familiar with the material from Western Asia will at once see what a tremendous gain for rational comparative archaeology is represented by these reduced dates. The dates of Palestinian archaeologists, pegged like Aegean dates to Egyptian chronology (which is astronomically established back to about 2000 B.C.), are not affected at all, but the apparent lag between them and Mesopotamian-Syrian dates now disappears. For example, we can now safely date the *floruit* of caliciform pottery (characteristic of Ingholt's stratum J at Hamath and of the great hypogeum at Til Barsip on the Euphrates) between 2150 and 1900 instead of between 2400 and 2000, as seemed necessary in 1940. In Palestine this pottery appeared slightly later but also lasted down to about 1900 B.C.

All of Smith's arguments from stratification for lowering dates are validated by the Khorsabad List. That he did not lower dates still farther was in no way methodically wrong, since the cuneiform evidence seemed to make further lowering impossible. In my own independent lowering of dates to the same approximate level (discussed by Smith in an addendum to his study, pp. 48 f.), I also believed that the cuneiform evidence precluded further reduction. Yet the archaeological evidence was correct and the cuneiform was misleading!

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THE RELIGION OF GREECE IN PREHISTORIC TIMES (Sather Classical Lectures, vol. XVII), by *Axel W. Persson.* Pp. 189, pls. 11. University of California Press, Berkeley and Los Angeles, 1942. $2.00.

Professor Persson, as the brilliant excavator of Asine and Dendra and a scholar of wide range and mastery, has notable qualifications for writing this book, and in material and suggestiveness alike it answers the reader's expectations. An adequate critique would demand much space and a far greater archaeological knowledge than I possess; it must suffice to indicate Persson's chief contentions and to offer a few general comments.

Some introductory remarks set the stage and warn us against any undue isolation of prehistoric Greece. Certainly we must look beyond the Near East into the Middle East, but is it correct to

say (p. 2): "The interchange of spiritual goods is no more remarkable than that which involves material commodities"? Spiritual goods are fairly easily exchanged when they are defined ideas and when there is a medium of linguistic intelligibility. Today the radio and other devices make such things very easy. In the past, material objects have frequently been exchanged without an appreciation of even the symbolism which inspired their decoration. In fact, it is a peculiar feature of the last phase of the prehistoric period in Greece that a large area of the Near East had closer interrelations than were attained until the time of Alexander and that certain cultural features appear to extend even westward in the Mediterranean. As we go further afield the closeness shades off, e.g. as between the coast of Phoenicia and the Hinterland of Mesopotamia. The assumption of influences is valid for this time; but on the general proposition it is well to recall what Livy i, 18, 2–3 says of the theory that Numa learned his ideas from Pythagoras.

The first chapter, *Minoan-Mycenaean Religion and its Survival in Classical Myth*, is largely concerned with the tale of Glaukos, son of Minos and Pasiphae; he fell into a jar filled with honey and was found and reanimated by the seer Polyidos, who was put to the task after answering a riddle. Persson, while recognizing an element of pure folktale,[1] explains the jar from the custom, later attested, of burial in honey, and from indications at Mycenae and in Homer of attempts to preserve a dead body, and sees in the main features of the story "elements derived from an ancient vegetational religion" (p. 23). The name of Minos, when not linked to Theseus or to the function of judging, suggests the possibility of a survival, to be sure a remote one, for even in the Homeric tradition he belongs to a past or to a traveller's tale; and there may be some memory of a funerary custom (though it would not be one foreign to the classical Greek scene [2]); curiosity was perhaps excited by the casual discovery of some ancient pithos containing remains of bones.[3] Otherwise, there is nothing specifically Minoan: Glaukos, unlike Nilsson's "Divine Child," has a father and mother and normal family life; he is not nursed by some other woman, and the myth includes no suggestion that he later became a god. As it stands this is a tale about Polyidos (cf. [Plat.] *Ep.* ii, p. 311 A), like the tales about Melampos, rather than a tale about Glaukos. The owl chasing bees from the jar in the version of Euripides, as cited by Aelian *NA.* v, 2,[4] suggests to Persson (p. 19) the belief in divine epiphanies in bird-shape, but surely it is a detail arising from the similarity of *glaux* and Glaukos, no less artificial than Hegesianax' later suggestion (*ap.* Athenae. ix, p. 393 E) that Kyknos was nurtured by a swan. Persson links the story to the curious wealth of myth attaching to the name Glaukos, e.g. the fisherman who became an immortal (there, too, a miraculous herb plays a part). This combination may be right and could perhaps point to some faded *daimon* of the pre-Greek age; certainly a sea-god might well have become the son of the great mythical ruler of the sea. We can hardly say more, and I am inclined to regard the tale of Glaukos and Polyidos as a poetic construction in which old motifs [5] were employed rather than as a sacred story which has suffered erosion.

Persson proceeds to his main enquiry, *Minoan-Mycenaean Signet Rings and the Vegetation Cycle*, followed by shorter chapters on *Death and Resurrection—Offerings and Festivals*, and on comparisons with the religions of the Near East, survivals in the Greek religion of classical times, and analogies in Nordic religion of the Bronze age. The first of these chapters is a *catalogue raisonné* with valuable remarks on style [6] and authen-

[1] Cf. H. J. Rose, *Handbook of Greek Mythology*, p. 297. (The anonymous fragment in Nauck, *Trag. Graec. Frag.*[2] p. 874, fr. 166, seems to have dropped out of recent discussions of the story).

[2] C. Robert, *Heldensage*, p. 201, n. 1.

[3] H. Bulle, *Orchomenos* i (*Abh. Münch.* xxiv, ii, 1907), p. 68, regarded the story as arising from pithos burial.

[4] Eurip. fr. 636 N. speaks of a sea-eagle, which by flying over land proved, that the body of the dead boy was on land and not on sea. The owl may be a second omen (Robert, p. 199).

[5] Note the rôle of the Curetes (cf. J. Poerner, *Diss. Phil. Hal.* xxii, ii, p. 336) and the ending of the story: cf. F. Poland in *RE.* xv, col. 1926, on the confrontation of Minos with other saga figures (just as legend makes Solon meet Croesus and Alexander meet Diogenes). We cannot, however, dismiss the possibility that Robert, *op. cit.*, p. 201, and K. Hanell, *Megarische Studien*, p. 100, n. 3, were right in suggesting that the story may originally belong to Corinth and not to Crete.

On the other hand, for a surprising survival cf. George Hill, *A History of Cyprus* i, p. 65 f.

[6] E.g. pp. 25 ff., 49.

ticity,[7] as well as on religious gestures (e.g. p. 44 f. on a goddess holding a mirror). We may fully agree with the writer in interpreting these objects in terms of ritual—at least in terms of imagination playing around ritual and around its background in myth: there is the occasional possibility of a *genre* scene, such as later adorned the shield of Achilles, but heroic myth is hardly ever likely.[8]

Hereafter there is room for dissent. Persson's analysis differs from Nilsson's, above all on four points. (1) With Schweitzer and earlier writers, he thinks in terms of one Minoan goddess with a multiplicity of functions, and of a subordinate male deity as consort who is apparently also Nilsson's "Divine Child" (p. 136 f.)—and not of a variety of goddesses, a Master of Animals, subordinate but not (or at least not demonstrably) a consort, and an independent Divine Child. (2) He finds a three-fold ceremonial of first, winter, second, spring, third, summer and harvest time, corresponding to the life cycle of a divine spirit who dies, rises, and grows; various scenes showing lamentation and a pithos (interpreted as signifying a burial), are referred to this spirit's death. (3) Eunuchs and women corresponding to the Amazons were ministers of the cult. (4) "The Great Beast of Heaven and of Fertility must have played an important rôle, especially at the great spring festival," the Beast being the bull.

As for (1), from the art evidence alone, the multiplicity of goddesses would not be clear;[9] but what looks like unity may well be iconographic and stylistic rather than religious. Further, Crete was a large island, with a physical structure which made for cantonalism rather than for unity, and in historic times it shows a variety of figures with a strong resemblance to one another,[10] but with different names, comparable with "all weather gods," "all Hepits," "all Ishtars" in Hittite texts. Although Babylonians could treat various high gods as forms of Marduk, plurality remained in practice.[11] It may well be that each type of goddess distinguished by Nilsson possessed various representatives here and there.[12]

[7] E.g. p. 101 ff. On no. 7, p. 46 f., no. 17, p. 64 f., some reference might be made to B. Schweitzer's doubts (*Gnomon* iv, 1928, p. 171; supported by Fr. Matz).

[8] If legend was represented, it may well have been on textiles (cf. *Iliad* iii, 126 ff., to which John A. Moore kindly drew my attention). The scene shown by Persson, p. 133, fig. 24, certainly looks like Europa on the bull; but is it a sacred story which only later became a legend? We cannot ignore the possibility, discussed by C. F. A. Schaeffer, *The Cuneiform Texts of Ras Shamra-Ugarit*, p. 60 ff. of some borrowing from the myth of Asherat; after all, Europa was commonly said to come from Phoenicia.

[9] A ring from Isopata may show two Minoan goddesses clasping hands. (A. Evans, *Archaeologia* lxv, 1914, p. 31; L. R. Farnell in *Essays in Aegean Archaeology Presented to Sir Arthur Evans*, p. 12, n. 1. Evans himself in *The Earlier Religion of Greece*, p. 39 f., while associating the Minoan goddess with a multiplicity of functions says: "A truer parallel, indeed, is presented by the local Baalim and their female equivalents of Semitic Cult, the essence of the divinity being essentially the same."

[10] Farnell, *op. cit.*, p. 12. Farnell includes Rhea. The early use of her name in Crete is by no means certain, but we should not follow Lobeck, *Aglaophamus*, p. 1127, and U. von Wilamowitz-Moellendorff, *Glaube der Hellenen* i, p. 129, in attaching importance to the statement of Demetrius of Scepsis *ap.* Strabo x, p. 472, that Rhea was not honored in Crete and belonged not to that land but only to Phrygia and the Troad. It is on a par with the denial by Demetrius that there was any secret tradition about the Cabiri in Samothrace. Demetrius wrote in a spirit of local patriotism, *ad maiorem Troadis gloriam*, and perhaps partly in opposition to the sweeping claims made for Crete by antiquarian writers in the Hellenistic age (cf. F. Chapouthier, *Les Dioscures au service d'une déesse*, p. 158). His denial (*ap.* Strabo i, p. 45) that Homer knew of Jason's journey to the Phasis suggests that he had a certain capacity for ignoring evidence.

[11] Cf. L. R. Farnell, *Greece and Babylon*, p. 187 f.; Nock, *AJP.* lxiii, 1942, p. 223. Cf. K. Sapper, *Arch. f. Rel.* vii, 1904, p. 457, on the plurality of figures called Tzultaccá (mountain and valley gods) among the Kekchi Indians.

P. Lemerle, *BCH.* lx, 1936, pp. 336 ff., publishes a funerary bequest "to the *symposion* of the god Souregethes;" Souregethes is clearly a form of the rider-god. If the members of this guild fail to perform the observances prescribed, they must pay double the amount of the bequest τοῖς ποσιασταῖς Ἥρ[ωνος πρὸ]ς τὰ Τορβιανά. There is no doubt as to the sense of the restoration, though it could also be Ἥρωος. Accordingly we have two distinct cults in the same place of forms of what is generically a single divine figure.

[12] Cf. Wilamowitz, *Glaube* i, p. 123. The theory of Sp. Marinatos, Ἐφ. 1937 (publ. 1938), p. 290 f.,

Again, the Boston statuette certainly belongs to a goddess distinct from any on the rings: it may portray a priestess rather than a deity, but even so, it is evidence for the snake as a primary attribute.

To come to (2), there can be no doubt that Minoan religion was characterized by emotional ceremonies and animated dances associated with trees and vegetation and such ceremonies are very likely to be seasonal and to correspond to the dramatic cycle of nature's life. Man depends on it for his existence: and in a measure he responds to it and participates in it. (Minoan art has a striking preoccupation with the wild life of nature, as distinct from cultivation). There are, further, indications that Minoan rites involved sorrow and joy, and it has been natural to think of Attis, Adonis, and Osiris (or of the annual laments for obscurer figures, e.g. Hylas, Bormos, Lityerses [13]). Yet these very analogies show that a cycle of festivals is not necessary; the divine drama can easily be compressed into a single celebration. Further, however much the connections between prehistoric Greece and Anatolia may predispose us to think of seasonal observances as corresponding to a divine myth, and clearly as the myth of the Divine Child is related to the alternations of the life of nature, such correspondence of cult and myth is by no means necessary. The older Roman calendar of festivals, the ceremonial of the Argei, and the ritual of the Arval Brothers in the grove of Dea Dia show an abundance of seasonal celebrations, some involving vigorous gestures, without any notion of a divine drama and without any personal mythology. Persson has made as strong a case as could be for his view; if he has occasionally pressed the evidence a little too hard,[14] that is almost inevitable in the discussion of such issues; but for the moment our answer should perhaps be *non liquet*, without prejudice.

(3) The supposed eunuchs and Amazons depend on one ring interpreted as showing men in women's skirts (p. 57, 89 f.) and on one showing women with a single curiously developed breast (pp. 59 f.; 90; 111 f.). The first proves nothing, for in ritual an exchange of clothing without self-mutilation is not uncommon. The second type is certainly curious, but it can be explained on the analogy of archaic art where women are occasionally represented with only one breast, before the use of the third dimension was properly realized.[15] Further, whatever the truth about the Amazons, and whether we do or do not attach importance to the description of them as invaders (normally from Asia Minor), they are never represented as having only one breast and the idea of their self-mutilation is almost certainly neither more nor less than an incorrect piece of popular etymology.[16]

On (4), the rôle of the bull, Nilsson's grounds for skepticism are weighty,[17] but Persson may well be right. In addition to the material which Malten and he have assembled, we may recall the evidence recently discovered in Cyprus (Sir George Hill, *History of Cyprus* i, pp. 57 f., 60 ff.) and F. Altheim's discussion of the significance of the bull in pre-Indo-European culture over a wide area of the Mediterranean (*A History of Roman Religion*, tr. H. Mattingly, pp. 74 ff.). Whether the Cretan bullfights did or did not have a specific religious meaning, it is probable that they were linked to the occasions of religious festivals.

We are feeling our way into the prehistory of Greek religion and of Greek culture and our instinctive judgments of probability are no sure guide. The opinions expressed in this review are stated with much hesitation; no such feeling hampers the pleasant duty of thanking Persson

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that there is a sequence of representational types, deserves careful scrutiny.

[13] For these cf. M. P. Nilsson, *Griechische Feste*, p. 166 f., 436; H. J. Rose, *Handbook of Greek Mythology*, p. 200.

[14] Thus, p. 76, plants or leafy branches rising from a pithos are compared with the Gardens of Adonis in classical times, but the essential quality of the latter is rapid flowering in *thin* soil on broken pottery.

[15] E.g. E. Pfuhl, *MuZ.* iii, figs. 358, 360. I owe this point to Miss G. M. A. Richter.

[16] Professor J. Whatmough kindly confirms this, remarking: "Privative compounds in Greek are normally 'possessive' in type, i.e. they do not change the stem:* ἀ-μαζος would be normal like ὠκύπους, (lit. 'swift-foot,' hence 'swift-footed,' 'having swift feet'); so τρίπους, ῥοδοδάκτυλον, ἄπαις ('no child,' i.e. 'childless') and a score of others. 'Αμαζών from that point of view is irregular and looks like the purest of pure *Volksetymologie*. If I had to search for a source I should start in Anatolia (ἀ- often = Hittite ḫ)." On art representations cf. F. M. Bennett, *Religious Cults Associated with the Amazons*, p. 13 ff.

[17] Cf. G. E. Mylonas, *Harv. Stud. Class. Phil. Supp.* i, 1940, p. 33.

for new material and suggestive interpretations.[18]

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BILDER GRIECHISCHER VASEN, edited by J. D. Beazley and Paul Jacobsthal. Volume 11: SAKONIDES, by *Andreas Rumpf*. Pp. 30, pls. 32. Leipzig, H. Keller, 1936 and 1937. 28 RM.

The sheer pleasure derived from such a display of wit, eye and intelligence as that used in the making of this book makes one long to agree with its author from beginning to end. At first glance his solution is impossible: Sakonides *cannot* be the same painter as Lydos: the early amphorae are of a different world. And then, little by little the three groups are closely interwoven into one dazzling and complicated pattern, so that it is hard to see where any thread has been left unravelled. At third or fourth inspection, however, through the first rainbow sheen of Rumpf's beautiful network, holes begin to appear here and there in his web.

The building up of a clear picture of the style of a vase painter is a mathematical problem which must check at nearly every point. The starting-place must be the signed pieces, or the original pieces on which one's ideas of the painter's style are to be based. The process of further attribution must be a minutely scrupulous one or the result can be pandemonium. Miss Richter's article on "Lydos" in the *Metropolitan Museum Studies* iv, 1932–1933, p. 169 ff. is a perfect example of the method to be followed.

With regard to the Lydos-Sakonides problem, therefore, the one truly safe way seems to be to connect with the signatures of the two artists only those vases which are theirs beyond all possibility of question. If these in turn are revealed to have stylistic idiosyncrasies in common, the case can be considered as proven. Otherwise it must remain in the realm of interesting conjecture.

Rumpf is quite right in saying that, save in the case of his nos. 1 and 2, were it not for the signatures no one would have thought of connecting the signed vases of Sakonides. To (1–2), the lip cups with female heads on the rim, must be attached (3–8). (9), however, is not the same: chin, ear, mouth, slant of eye and shape of head bear no real resemblance to the others. The earring is missing and a row of dots outlines the forehead. (17) was tentatively assigned to Sakonides years ago by Graef (*Die antiken Vasen von der Akropolis zu Athen*, p. 174 f.), from a supposed likeness of head and headdress of one of the women with that on (1), and of the heads of the men with that of the Herakles on the signed cup of Sakonides in Cambridge. These likenesses the reviewer does not see. Aside from the difference in technique (outline in (1), white paint in the Acropolis fragment, notoriously unreliable for likeness), the head of the woman in the barred cap on (17) is shorter and the figures on the Acropolis cup are not strikingly like those of Sakonides' work in any other respect: the heads of the Cambridge cup and (17) are alike only in general type. The ear of the Cambridge Herakles is quite different. There is no reason why the cap, seen also in (9), should not be a fashion of the decade after the middle of the century.

Likewise the Epitimos cup (10), though in details the woman's head is like the Sakonides heads, cannot be attributed to him, and the figures on the interior are not at all like those of (16) or (18).

One vase which does resemble the Taranto cup (16), however, is (43), although the reviewer has not seen the details of either one of the vases well enough to assert that they are by the same hand. Robertson points out the likeness in his review of *Sakonides* (*JHS*. lvii, 1937, p. 267).

The main elements of the style of the painter of the vases signed by Lydos have been outlined in Miss Richter's article in the *MMS*. iv. Using her criteria, the following numbers in Rumpf's list are by his hand: 19, 21, 26, 27, 28, 30, 33, 35, 44, 62–65, 67, 75, 90, 91, 100, 110. To these must be added Beazley, Ἐφ. 1937, pp. 14 ff. and Roebuck, *Hesperia* ix, 1939, no. 107, fig. 27 and p. 191, and no. 218, fig. 44 and p. 227 f. The animals of the lower zone of the Acropolis lebes are linked with those of other vases besides those mentioned here, but are not, I believe, sufficient evidence to warrant the attribution of the vases to Lydos.

(17), (10) and (18) are used by Rumpf as main points of contact between Sakonides and Lydos. (18) is Sakonides'. (17) and (10) the reviewer does not think his, but will take them up in the order in which Rumpf discusses them. In the case of (17), to mention only four differences between these figures and the figures of Lydos as we know them from the group around the signed fragments: 1) the outlines of the figures are incised;

[18] Cf. V. Müller, *CW*. xxxvi, 1942, p. 58 f., for a decidedly favorable view of Persson's theories.

2) the diagonal lines on the abdomen are strange; 3) the lines of the knee are too sketchy; 4) the ring round the nipple is wrongly placed. In (10) the interior is like Lydos' work, the outside less so. The vase cannot be attributed to Lydos and therefore loses its significance as a connecting link. (18), the truly important link, if it could so be proved, has at least six points at variance: the wrong proportions of the body of the lion (sway back and oblong chest as compared with the beautiful triangle of the lions of (44); the *reversed* double arc on the thigh of Herakles, the shortness of the foot, the haste of the drawing of the patella, the uncertainty of the strokes of the eye, the difference of the proportion of ear to head.

If (18) fails, then a stylistic bridge between "Lydos" and "Sakonides" cannot be said so far to have been established.

With regard to the evidence of the Lydos signatures, Graef says definitely that the break before the HOVVAOϟ on the Acropolis lebes is not so big as to allow of the complete disappearance of a punctuation mark. And from her own memory of the fragments, the reviewer thinks that the possibility mentioned by Rumpf (page 9) of a second instance of punctuation in the signature must be eliminated. Graef says, indeed, that it would be easier as the signature stands to take Lydos as the potter, with the verb first, followed by the name, with the name of the painter lost at the right and the punctuation mark dividing the phrase as in verse, but he also takes into account the signed fragment in the Louvre and comes to no conclusion as to whether Lydos was potter or painter. Rumpf, however, in his hope that Lydos is the potter, argues that the inscription can be interpreted in at least four different ways, and that archaic punctuation is completely haphazard and untrustworthy. He therefore disregards the epigraphical evidence and dismisses the Louvre fragment with the remark that not enough of it is left to settle the doubt, and that the parallel of the signatures of the Xenokles-Kleisophos jug prevents one from being sure which verb goes with which name.

May one in the first place take exception to Rumpf's statement as to the utter unreliability of archaic punctuation on vases? It is true that its presence or its absence is unpredictable. The same vase will have it in one place and not in another—and in entirely comparable phrases. But may one register the impression that when punctuation *is* present in the juxtaposed signatures of potter and painter on Attic black-figured vases an unpunctuated break is more likely to separate noun and verb than a punctuation mark? See, for instance, the Exekias stand in New York, *BMMA.* 1931, p. 290, figs. 1–2. In the second place, it is hardly necessary to point out that in artists' signatures on vases the verb more commonly follows the name of the artist. In the third, attempts to make "the Lydian" merely an epithet need further proof. There is no difficulty about the use of Lydos as a proper name when we have the parallel case of Skythes (Graef, *op. cit.*, no. 2557, pl. 106, and no. 2586, pl. 110).

One fourth and last point—one of emphasis rather than discovery. In his excellent review of *Sakonides* (*JHS.* lvii p. 266), Robertson did not sufficiently stress the fact of the space after the EΛPϟEN of the signed fragment in the Louvre. If the name is written vertically and followed by a verb and an appreciable interval between the end of the verb and the lower border of the picture, no other name, at least according to our present precedent, could have followed in the vertical space at the right. (The background at the left is of course empty.) And as Robertson also pointed out, the Xenokles-Kleisophos signatures offer no parallel. There the names run vertically in one space, the ἐποίεσεν in another and the ἔγραφσεν in a third.

If, then, Lydos does sign as painter (an issue which Rumpf frankly sidesteps), the main thesis of Rumpf's argument is undermined and the equation of Lydos with Sakonides is most unlikely. Since this reviewer also does not think that Rumpf has proved a synthesis of the styles of the artists we had formerly known separately as Lydos and Sakonides, she necessarily must conclude that his theory, while brilliantly conceived and evolved, will not stand by itself in its present form.

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THE OXYRHYNCHUS PAPYRI, Part XVIII, edited by *E. Lobel, C. H. Roberts,* and *E. P. Wegener.* Pp. xii+215, pls. XIV. London, Egypt Exploration Society, 1941. 63 sh.

The latest volume of the Oxyrhynchus series is the first to appear since the death of A. S. Hunt. With its fine frontispiece portrait of him, it serves as a fitting reminder of his contributions to the literature of papyrology, and of that remarkable collaboration with B. P. Grenfell which

produced the first sixteen volumes of the Oxyrhynchus series, two volumes of the Tebtunis papyri, *Fayum Towns*, and *Hibeh Papyri*, with an average of 125 papyri published or described each year from 1898 to 1924. Over half of this volume is devoted to new classical fragments which have unusual interest both for students of Greek literature in general and for scholars whose attention is focussed on the Hellenistic culture of Egypt. The wide range of taste at Oxyrhynchus is indicated on the one hand by the tragedies of Aeschylus, and on the other by the scurrilous iambics of Hipponax. The documentary section also contains items which are exceptionally informative, like the letters, no. 2190–2192, which convey a vivid impression of the intellectual liveliness and cosmopolitan spirit stirring even in the hinterland of the province of Egypt.

The literary fragments in this volume are edited on a plan differing from that of the earlier volumes. It must be said that the aspect is less inviting than heretofore, and that the unspecialized student will feel keenly the lack of certain aids. Such were the lengthy discussions in introduction and commentary, and the translations which effectively synthesized the editors' interpretation—accessories which, for example, made the fragments of Euripides' *Hypsipyle* (Vol. VI) so readily available. Mr. Lobel is too modest in his disclaimer of competence to give a fuller interpretation (p. vi). His editorial method finds a firmer basis in his conviction concerning the function of the *editio princeps* of a papyrus. His conception reduces reconstruction to the absolute minimum, restricts it, in fact, to lines attested verbatim in quotations or unequivocally recoverable from testimonia. Commentary also is reduced to the narrowest and most technical considerations. What is emphasized is the bare text of the papyrus, with such aids as photographs and a full critical apparatus. This method has the obvious virtue of objectivity and without doubt produces the text which is most serviceable to the expert in textual criticism, but the justification for it from a less scientific point of view is questionable. A feeling of discouragement overcomes the reader when he perceives that Mr. Lobel has consistently refrained from making full use of his incomparable knowledge of Greek poetry.

The grouping of many fragments of the same author is a praiseworthy innovation. It serves to emphasize the contribution of this volume to works of authors not widely represented in other papyrus collections. The eight numbers assigned to Aeschylus (2159–2164, 2178–2179) include fragments of two satyr-plays which are the outstanding novelties of the volume. Chance has here been most generous in providing enough to show how Aeschylus handled the lighter themes. A fruitful enterprise for literary critics will be the analysis of these fragments to determine the qualities which constrained people in general (Pausanias ii, xiii, 6) and Menedemus in particular (Diogenes Laertius ii, 133) to judge Aeschylus preëminent among writers of satyr-plays. The dynamic impact of Aeschylean diction was undoubtedly a factor. These fragments reveal its presence, for example, in no. 2162, Frag. 1(a), i, 18 ff.[1] Professor Fraenkel in a recent article [2] has written a fine appreciation of the new fragments. He points out the artistry with which, in the *Dictyoulkoi*, the sombre notes of Danae's lamentation and foreboding (ll. 772–784) are contrasted with the infectious gaiety of the following scene (ll. 785–820), where the satyrs and Dictys give voice to "one of the loveliest pieces of Greek poetry." Professor Fraenkel brings to attention Aeschylus' sure insight and deft touch in depicting the child, the fisherman, inept in his advances, and those "artless creatures," the satyrs.

In his comment on the *Theoroi*, Professor Fraenkel suggests that the objects which the satyrs carry are terracotta images of themselves, and that the theme of the play is the invention of the mask antefix, brought to pass when the satyrs dedicated the images by nailing them to the cornice of the temple. This suggestion is plausible and may help to resolve the difficulty which is apparent in Frag. 2(a), ii, 15: ἀπὸ σ[κε]πάρνου κάκμ[ονος. Lobel in his note admits that he is baffled: "The speaker appears to be offering something, but what is made with adze, used for

[1] πασσαλεύω is a favorite verb with Aeschylus; here the compound with ἐπί appears for the first time. Likewise unique is the *nomen agentis* κωλύτωρ. Professor Fraenkel's ἐμπόρων for pap. ἔμπορον makes the triple metaphor clear and gives a climactic order.

[2] "Aeschylus: New Texts and Old Problems," *Proceedings of the British Academy* xxviii, 1942. Not immediately procurable through the regular channels, this was called to my attention and made available to me through the kindness of Professor Alexander Turyn.

rough-hewing wood or stone, and anvil, used for beating metal?"

If we conceive that the peacemaker at this point is the same person who presented the images to the satyrs, the propitiatory gift offered to the antagonist may well be another image, of better material and workmanship, designed to make an even finer showing than the satyr-masks. We may interpret κακ as a crasis for καὶ ἐκ and suggest κάκ μ[υρίκης—an image of tamarisk wood—or κάκ μ[ετάλλου—a likeness carved in stone "from the quarry."

Two substantial fragments from Alcaeus are published under no. 2165. In one the poet inveighs against the political turncoats of his day in characteristic fashion. In the other he gives in quieter mood and milder phrase an account of his life in retirement, at a period when he at least professed to be reconciled to political inactivity. The connected text closes with a description of his place of retirement: "the sanctuary of the blessed gods . . . where the Lesbian ladies, come to the judgment of beauty, pass to and fro trailing their robes, and round about, divinely sweet, rings the sound as the women [begin] the invocation at the yearly assembly."

Extensive fragments represent new poems of Callimachus (2167–2173), and Hipponax (2174–2175), and parts of some 165 lines of extant works of Aeschylus (*Agamemnon; Seven against Thebes*) and Sophocles (*Oedipus Rex*) are preserved by 2178–2180. No. 2181, a number of fragments from a roll containing the *Phaedo*, bears witness to the textual eclecticism which we have come to expect in second- and third-century copies of the standard prose authors.

No. 2177 is an important addition to the Alexandrian martyrology. It reports the proceedings of an embassy before the emperor Trajan or Hadrian. Frag. 2 indicates that the negotiations were an attempt to secure the release of certain Alexandrian aristocrats who were being held at Rome as hostages. The significance[3] of Frag. 1 has not been made sufficiently clear by the editor. It is primarily occupied with the emperor's examination of the credentials of the ambassadors. At least two of these were Athenians, and the emperor has called their status into question. Even though he may have been willing to accept Athenodorus' sweeping allegation that the laws of Athens and Alexandria were identical, the letter set forth in col. ii shows that the position of a citizen of one city who attempted to appear as ambassador (not merely as advocate) of another was precarious, and that the hearing accorded to an embassy so composed rested not on right, but on the emperor's complaisance. The situation recalls the one set forth in another fragment of the martyrology, where an individual who proved not to be a citizen of Alexandria or of any other *municipium* was dismissed from an embassy. In addition the emperor condemned him to corporal, perhaps even to capital, punishment for his crime, which was probably construed to be *laesae maiestatis*.[4]

In the documentary section, the lively private letters, 2190–2192, claim chief place in general interest. The first is a letter to a father from a young man away at school, in which the principal topic is the shortage of competent teachers. The boy cannot find tutors or lectures to his liking, nor a qualified tutor to send home where one is needed, and he has had to rely on his own resources in his studies. The second adds another item to the list of letters from Italy[5] and tells of a passage made late in spring. Though slow, it was unmarred by seasickness, an inconvenience which the writer, taking his first voyage, seems to have more than half expected. No. 2192 is a letter which commissions the copying or buying of books, among them a certain Hypsicrates' "On the Characters of Comedy" and a work by an even more obscure author named Thersagoras, "On the Tragic Myths." The tone is that of an avid book-collector: "If you find any aside from those I have, make copies and send them to me."

The first of the official letters (no. 2182) reveals a serious breakdown in the rather cumbersome system of grain transport. It was often necessary for the administrators to send the κτηνοτρόφοι, the keepers and drivers of donkeys in the transport service, to work in neighboring nomes. Apparently this transfer sometimes involved the loss of effective control over the drivers. The strategus of the Arsinoite nome complains to the acting

[3] Pointed out to me by Professor H. C. Youtie; the suggestions here made were developed in discussion with him.

[4] Anton von Premerstein, *Alexandrinische Geronten vor Kaiser Gaius. Ein neues Bruchstück der sogenannten Alexandrinischen Martyr-Akten* (P. Bibl. Univ. Gies. v, Giessen, 1939), pp. 62–65.

[5] Wilcken, *Chrestomathie*, p. 480; Preisigke-Bilabel, *Sammelbuch* iv, 7352–7353. See also, e.g., J. G. Winter, *Life and Letters in the Papyri*, Ann Arbor, 1933, pp. 39–42.

strategus of the Oxyrhynchite nome that, out of 411 donkeys sent into the Arsinoite, only 156 remain at work. The drivers of 255 donkeys[6] have decamped, taking their animals with them. The offenders are to be arrested and their places filled by more reliable workers immediately, so that the grain may reach the Nile ports in time to be carried to Alexandria under conditions favorable to navigation.[7] Three accounts from the archives of the Apion family,[8] 2195–2197, shed further light on the varied enterprises of the Byzantine estates. Most of the work, as Hardy observed (*op. cit.*, footnote 8, p. 123), was on irrigation devices, as in 2195, 134–140 and 2197, *passim*, but buildings figure also in the account of bricks, no. 2197; for example, courtyard enclosures, ll. 55–56; houses, 74–75, 152–157; a bakery, 79, and potters' establishments, 97 and 135. It is noteworthy that the bricks concerned are baked bricks rather than the sun-dried bricks which were and are the building material normally used in Egypt. In modern times only limited use is made of the more expensive but far more durable baked bricks, even on the large estates.[9] The Apion family, with adequate resources and a confident expectation of long tenure, apparently adopted the policy of building with baked brick, to take advantage of the permanence and lower cost of upkeep which this material affords.

The inspection of this excellent and compact, though difficult, edition has brought to mind a few suggestions. In the Hipponax, no. 2174 Frag. 16, 21, the evidence would justify the reconstitution of a complete line:

ἐγὼ μὲν ὥσπ[ερ π]ᾳ̣ῶον ἰστιόῤ̣[ρομον][10]

In 2177, 32, the word lost was very likely διατεταγμένα, *decrees*. In 2206, one of the minor documents summarily presented, the word ἔγκαυμα occurs in a context which links it with bricks or brickmaking. The editors properly reject the attested meanings of the word—*brand mark; encaustic painting*—and suggest that the reference is to a kind of baked brick or tile. The construction of the entry (ὑπὲρ τιμῆς ἐγκαύματος . . . εἰς χρείαν τῆς πλίνθου βληθείσης εἰς τὸ αὐτὸ χῶμα) makes this interpretation rather improbable. *Fuel burnt* in the brick kiln seems more likely.[11]

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[6] The verso gives 245 as the total of a list which actually adds up to 247. 255 is the number obtained from the figures on the recto.

[7] This important document is discussed in two notes, by Professor H. C. Youtie and O. M. Pearl, in *Classical Weekly* xxxvi, 1943.

[8] The Apion family is dealt with at length by E. R. Hardy, *The Large Estates of Byzantine Egypt*, New York, 1931; see especially pp. 25–38; 80–112.

[9] See J. Lozach and G. Hug, *L'Habitat rural en Égypte*, Cairo, 1930, pp. 26–27, 49–54, 106–107, 137. It is the rich who build their houses of baked brick; see pp. 25, 128, 131 and also *Carte hors texte* no. I.

[10] π]λῶον: omega is suggested in Lobel's apparatus; the right stroke of lambda is represented by a trace (Plate X). ἰστιόῤ̣[ρομον]: omicron very doubtful, but delta quite credible.

[11] This suggestion is due to Professor Bonner. Compare, in Liddell-Scott-Jones, *Lexicon*, καῦμα, *firewood*. For the practise of firing brick at the site of the work, see Lozach and Hug, *op. cit.*, footnote 9, p. 88. I had at first thought of ἔγκαυμα as the kiln in which the firing was done, but this seems inconsistent with the normally passive meaning of this formation.

CORINTH III. CORINTH: RESULTS OF EXCAVATIONS CONDUCTED BY THE AMERICAN SCHOOL OF CLASSICAL STUDIES AT ATHENS, VOLUME I, PART II: ARCHITECTURE, by *Richard Stillwell*, *Robert L. Scranton*, and *Sarah Elizabeth Freeman* with contributions by *H. Ess Askew*. Pages xviii+243, frontispiece in color, 189 illustrations in the text, 20 plates in portfolio. Published for the American School of Classical Studies at Athens by the Harvard University Press, Cambridge, Massachusetts, 1941. $10.00.

This second fascicule of the definitive publication of the architectural remains of ancient Corinth covers five buildings: the Peribolos of Apollo, the Façade of the Colossal Figures, the Northwest Stoa, together with the Northwest Shops, Temple C. and Temple E. The names of only four authors appear on the title page, but in the notes will be found acknowledgments to a long line of scholars and architects who, as members of the American School of Classical Studies, through 40 years have contributed to the excavation, the planning and the study of this considerable portion of the civic buildings of Corinth.

The volume represents the harvest of a second swath, so to speak, cut from east to west through the ancient civic center. The sequence begins on the east with the Peribolos of Apollo. This emerges as one of the most intriguing corners of the an-

cient city: an area, about 40 m. square, to the north of the Fountain of Peirene and to the east of the road to Lechaion. Pausanias noted a statue and a peribolos of Apollo and in the peribolos a painting of Odysseus slaying the suitors. The authors have traced the history of the spot from the Neolithic Age to the Byzantine, Mr. Askew covering the early period, Professor Stillwell the later.

Through much of its history the place owed its importance to the proximity of the spring. It is surprising, therefore, to find burials in it, one of the Early Helladic period and two of the Geometric; these, however, need not imply any break in habitation. It was the water, no doubt, that attracted the metal workers. Iron waste is reported in a context of the Geometric Period, exiguous remains were found of a bronze-working furnace of about the turn of the Christian era and waste from bronze casting was noted in a context of the fourth century after Christ. Some of the carefully paved floors and water channels of the Greek period, found elsewhere in the area, may also have been used by the metal workers. It is probable that more was done here than the working up of bronze and iron objects; some, at least, of the ore dressing was probably carried out on the spot—hence the need for an abundance of water, not necessarily water of any special quality as implied by Pliny. Ancient metal working establishments have come to light beside the Agora of Athens, in corresponding proximity to the spring house near the south side of the market square.

Evidence of other industrial activity on the spot or nearby is given by a mass of terracotta figurines of the Hellenistic period, among them some wasters.

The architectural character of the place was determined chiefly by a sanctuary, which existed as early as the fourth century B.C. and possibly earlier. In the lack of all evidence save the single reference in Pausanias, the authors suggest that Apollo was worshipped in the Greek period as well as in the Roman. The sequence of structures relating to the sanctuary has been painfully recovered by the excavators. The earliest building was a small temple, apparently distyle in antis; the evidence for its date and plan might have rewarded closer attention. After a short life, the temple was dismantled and replaced by a *baldacchino*. Temple and *baldacchino* were served successively by a large semicircular altar, itself curiously sheltered by a roof supported on 4 columns. Shortly before the destruction of the city in 146 B.C. the precinct was adorned by a simple Doric colonnade of 16 columns across its northern side.

After 50 years or so of casual occupation in the Roman period the area was once again given a monumental aspect. It was enclosed on all four sides and on three of them, north, south and west, were erected rows of shops facing toward the court through colonnades. The middle of the court was occupied by a circular monument of which the foundations alone survive, 7.50 m. in diameter. No clue remains as to what was carried by this foundation, nor do we know, even, whether it was associated with cult. The construction of this period was carried out in limestone, but virtually none of the superstructure has survived.

The limestone peribolos with shops gave place to a marble scheme without shops. The occasion was probably a destructive earthquake of A.D. 77; there are traces of an earlier, abortive attempt at a similar revision. By the elimination of the shops the open space was enlarged, and Ionic colonnades now rose on all four sides. An exedra of irregular outline, opened out of the back of the southern colonnade. There are three openings through the south wall toward Peirene; the evidence for the other sides is wanting, but at least one entrance may be hypothecated for each of them. The colonnade was floored at a late date with mosaic, a panel of which has survived near the southeast corner: fish, fowl and flowers fill the spaces among large geometric medallions.

The authors find no reason to believe that the round central monument survived the limestone period of the court. They cannot localize the statue of Apollo seen by Pausanias nor the painting of Odysseus. Stillwell, however, suggests that the painting adorned the wall of the exedra.

One must pause to commend the sagacity of the Corinthians of the first century who withdrew this bit of property from commercial use and turned it into a retreat where they could find refuge from sun and rain as also from the bustle of the market place and where they might enjoy the beauties of the marble architecture, of sculpture and of painting.

The next structure dealt with is the Façade of the Colossal Figures, a monumental and ornate screen that closed an otherwise ugly gap in the line of the north side of the Agora between the Propylaia and the Northwest shops. It also

assisted in enclosing a forecourt in front of the main entrance to the Basilica and the fact that the Façade was centered on the south end of the Basilica suggests that the two structures were closely related in the architect's mind.

The visitor to Corinth has long known this Façade from the heaps of architectural marbles on its site and from its colossal marble figures that now dominate the Museum. He has known it, however, as the "Captives' Façade" and he may well be pardoned if he persists in preferring this title to the more exact but awkward name now officially announced. H. D. Wood studied and proposed a restoration of the structure in 1906–1907; Lyman C. Douglas worked on it in 1929–1930. Stillwell has used their results here but the new restoration is essentially his own.

The Façade was about 25 m. long and rose to a height of two stories, both of the Corinthian order. Close in front of the wall of the lower storey stood 8 columns; the wall itself must have been pierced with doorways, presumably 3 in number. The entablature of the upper storey was interrupted by curved indentations, probably 2 of them, and was surmounted by pediments above the 3 straight sections. The colossal figures that have given their name to the Façade rose in front of rectangular piers supporting the entablature of the upper storey. Wood restored only 4 of these Atlantid figures, placing them against the middle 4 supports. Stillwell argues for 8. The evidence is probably inconclusive, but much might be said for the earlier restoration. All the surviving fragments can be accommodated in 4 figures and of these, 2 are male, 2 female—an unlikely selection if made by chance from a larger group. Aesthetically, moreover, the restoration with 8 figures results in a monotonous and diffused effect. Another clue may be drawn from the "Stoa of the Giants" in Athens. Its colossal figures, from whatever earlier monument they may derive, would seem to have been four in number. In view of the similarity between the two groups in conception and style, the one was probably known to the designer of the other.

Stillwell dates the Façade to the middle of the second century after Christ and suggests a comparison with the North Gate to the Market of Miletus. Both monuments were doubtless much influenced by contemporary theater design and we shall probably do well to imagine the Façade, like the Roman *scaenae frons*, richly adorned with free-standing sculpture.

In his chapter on the Northwest Stoa and Shops Stillwell resolved most of the long and tangled history of the western half of the north side of the Agora. The proximity of this area to the sanctuary of Apollo on the north, and to the market square on the south must have lent it a certain importance from a very early period and Stillwell is unquestionably justified in suggesting the possibility, which is supported admittedly by only very slight factual evidence, that the Hellenistic Stoa had been preceded by an earlier stoa. The terrain, moreover, was such as to have challenged and tempted a Greek architect as early at least as the fourth century.

The earliest recoverable building on the site, the northwest stoa, is dated, chiefly on the evidence of its mouldings, to ca. 200 B.C. In plan the Stoa was simple: a long 2-aisled structure tucked in at the foot of temple hill, presenting to the market square a row of 47 Doric columns, with Ionic columns at double intervals on its midline. An indication of economy that would be hard to parallel in this period is to be found in the slope of the stylobate from west to east: ca. 1.32 m. in 101 m. This expedient relieved the architect of much cutting and filling and also reduced the disturbance of the long established levels in this part of the market square. One would gladly know whether the inclination was taken up in the columns or was repeated in the entablature. Another peculiarity of the Stoa is the absence of contraction in the column spacing toward the ends. There is no evidence to indicate how this affected the frieze.

A few architectural fragments give evidence of a second storey: unfluted half columns attached to square piers with Ionic capitals and with cuttings for a low parapet are assigned to the south front overlooking the square; another series of Ionic columns is used for the restoration of interior supports. The author debates whether to restore the flank toward the Temple of Apollo with a wall or a colonnade and inclines toward the former as a safer though tamer solution. The reviewer would agree and would point to the stoa in the sanctuary of Athena Polias at Priene as proof that the Greek architect did not hesitate to turn a stoa's back to a sanctuary, provided that its face looked to the South.

Another debatable point is whether the second storey formed part of the original structure or was added only in the Roman reconstruction. The author favors the latter alternative. At the west

end of the Stoa, however, are indications of a stairway, reminiscent of that at the east end of the Stoa of Eumenes in Athens, and scarcely explicable save on the hypothesis of a second storey. Almost equally cogent is the argument from the general practice of the period so well illustrated by the Stoas of Eumenes and of Asklepios at Athens, not to mention the Hellenistic cities of Asia Minor. The architectural members of the building survive only in battered fragments, most of which show signs of Roman reworking. The Hellenistic Stoa would seem to have suffered in the sack of 146 B.C., but was reconditioned soon after the Roman reoccupation.

Agreeable as the old structure had been as a sheltered lounging place, it failed to meet the need for shops in this part of the market-place. Consequently, its appearance and its ready accessibility were sacrificed to the erection of the Northwest Shops that were set down directly in front, at a time probably early in the second century. The new building contained 15 one-roomed shops, fronted by a colonnade. The middle room of the series is prominent because of its greater size, and it was further emphasized by enlarging slightly the column spacing directly in front of it and by flanking the middle pair of columns with piers. All the shop rooms were vaulted, the large middle one with cut stone voussoirs, the others with concrete. The order of the Northwest Shops is now represented only by inconsiderable fragments, many of which are not certainly attributable.

The western part of the Hellenistic Stoa, which was made difficult of access by the erection of the Shops, would seem now to have been filled in and abandoned. The rest of the older building, with certain modifications, continued in use for a long time.

In Chapter IV Scranton has devoted a good deal of attention to the scanty remains of Temple C and its identification. This temple, lying between the Fountain of Glauke and the road to Sikyon that led northward out of the northwest corner of the Agora, has been pillaged more cruelly than most of the large buildings of the ancient city, presumably because in its comparatively high position it was late in receiving its protective covering of earth.

From the tattered remains of concrete foundations, a couple of fragmentary column drums, the capital of an attached column and a cornice block, Scranton has restored a Doric temple with four free-standing columns across the front and with two attached columns between antae across the back. A date in the late Augustan or in the Tiberian period is indicated by pottery from the filling made for the foundation. The temple was set in a rectangular courtyard with colonnades (apparently Doric) to north, south and west; the effect of the colonnade was continued on the east side by a series of half columns set against the inner face of the wall. Beddings for pilasters have been noted at the foot of the inner face of the south wall, spaced in such a way as to correspond with alternate columns of the colonnade. A similar arrangement may be restored along the west and north sides, the pilasters breaking the wall surface and also helping to carry the ends of the horizontal beams of the porches.

The courtyard was entered through a doorway in the east wall and the approach was sheltered by a simple Doric porch of four columns. The lower part of one of the corner columns remains in place; it is unfluted, with a diameter of 0.60 m. For the restoration the author employs a fragmentary Doric capital found nearby which calls for an upper column diameter of only 0.385 m. The resultant diminution is excessive; the reviewer would suggest the assignment of the capital to one of the attached columns of the west enclosure wall which had a lower diameter of 0.56 m.

Temple and courtyard vary from each other by several degrees in their orientation so that the entrance, in order to open directly on the temple front, had to be placed nearer to the south than to the north side of the courtyard by the width of one column space. This asymmetry, however, would have been barely perceptible to the average visitor; certainly it would have been much less marked in actuality than it is in the plan.

On account of the discrepancy in orientation, the author is inclined to believe that temple and courtyard were not contemporary, and, since the stratification shows that the foundations of the colonnades were actually laid after those of the temple, he would have the courtyard an addition appreciably later in date. It should be observed, however, that the courtyard is carefully related to the neighboring monuments in both orientation and placing, and that the temple was so happily situated in its enclosure and the discrepancy between temple and enclosure was so skilfully adjusted by the placing of the entrance as to leave little doubt that the whole was the product of one program. The orientation of the temple is the one discordant element and the reviewer would sug-

gest that this was fixed by some practical consideration, such as the configuration of the rough quarry pit in which it was set.

For the identification of the sanctuary, the site itself has yielded no indubitable evidence, nor does it appear to have been mentioned by Pausanias. The author, however, is inclined to associate the sanctuary with the fountain of Glauke and to regard the sanctuary of the Roman period as a successor to an earlier cult place that had, he suggests, stood on the massive roof of the fountain house. The sanctuary in both its periods he would assign to Hera Akraia, where according to tradition, Medea's children were murdered and buried.

The author's argument, however, has stumbled over a number of formidable hurdles. He has failed to adduce any convincing reason or combination of evidence for believing that the rock cuttings on top of the fountain house ever supported a sacred building. He supposes that the commemorative rites practiced by the Corinthians at the tomb of Medea's children would have included a rehearsal of their mother's vain plunge into the water of the fountain; hence, he suggests that the reason for carrying the western enclosure wall of the Roman sanctuary so close to the southeast corner of the fountain house was to permit ready access from sanctuary to fountain. He has failed, however, to establish that the opening which now exists in the wall of the fountain house at that point dates from the time of the sanctuary or, at any rate, that it was intended in that period as a doorway. From the general disposition of the sanctuary, it would seem much more probable that the architect had been instructed to avail himself of as much land as possible without encroaching on Glauke. The fact that he grazed the corner of the fountain house in carrying out the project may have been occasioned by some exigency, such as that of column spacing. Had communication between sanctuary and fountain played such a vital part in the cult practice as that required by the author's theory, access would surely have been provided in some more evident and seemly way; the fountain house, for instance, might well have been incorporated in the sanctuary.

Two other serious difficulties are raised by Pausanias' account and are not satisfactorily disposed of by Scranton. Pausanias localized the Children's Tomb, which is said to have stood in the sanctuary of Hera Akraia, not with respect to Glauke but as beside the Odeion, and hence at a goodly distance from Temple C. In the second place, Pausanias wrote explicitly that the "sacrifices to the children of Medea were not reestablished by the colonists."

On the whole, it would seem better to leave Temple C as an ἀποσπασμάτιον ἀδέσποτον for the time being.

Miss Freeman found more abundant material for her study of Temple E. This sanctuary lay to the south of Glauke, to the west of the west end of the Agora, whence it was approached over a broad flight of stairs. The history of the temple is reminiscent of that of the Parthenon: a building of poros made way for one of marble and the later foundation overlies the earlier without coinciding precisely. Virtually all that remains of the earlier period is a rectangular platform of stone and concrete, measuring 44 m. x 23.50 m. A few poros blocks of suitable dimensions, found re-used in the foundations of the later period, are hesitatingly assigned by the author to the superstructure of the earlier. It is by no means certain, however, that the earlier structure was completed before the later was begun.

The construction of the earlier period is assigned to the reign of Claudius on the evidence of a handful of potsherds and of a single coin found in association with the foundations. The date may well be right, but that a solitary coin should "certainly date the construction of the wall within a decade" must seem to most excavators too good to be true. The poros temple, whether complete or not, is deemed to have suffered in the earthquake of A.D. 77 and the reconstruction in marble is assigned to the end of the first or the beginning of the second century, perhaps to the reign of Domitian.

The marble temple rose on a podium 42.70 m. long, 18.20 m. wide, with a height of 3.38 m., measured on the core alone. The site of the building was now shifted several meters to the west. Representative pieces have been found of all the major elements of the superstructure except the frieze, so that the restoration is reasonably precise and certain.

In plan the temple is restored as hexastyle, with 12 columns on the flank and with a broad flight of steps leading up to its east end. The cella would appear to have had a porch distyle in antis with a severely plain interior. The order was Corinthian. The podium was faced with marble and marble was used throughout the superstructure save in

certain of the column capitals, which were of stuccoed poros and probably placed at the back of the building. The workmanship is coarse, but the size and the beauty of its material must have made the temple one of the most imposing in the city.

The architrave across the east end bore an inscription in bronze letters of which only a tantalizing few remain, most probably to be read . . . eT LIBERI EIUS SP . . .

A few pieces of marble sculpture escaped the lime-kiln and were found close to the building. Among them is a fragment of a sandalled foot, from a figure approximately 10 m. tall and hence, in all likelihood, the cult statue. A pleasing figure of a Nereid riding a dolphin is readily recognized as an akroterion and is assignable to the southwest corner of the temple.

A number of fragmentary figures in Pentelic marble are shown by their scale, by the nature of their plinths and by the accompanying iron clamps, to derive from the pediments. Most distinctive among them are the chest of a male figure, the lower parts of a seated male (probably an Apollo Citharoedus), and of a reclining male, the upper torso of a standing female and a mass of drapery from a running female. The style of these figures and of their drapery is clearly Parthenonian and Miss Freeman has pointed out several echoes and free adaptations from the pediments of the Parthenon.

Found with the above fragments and further associated with them by their workmanship are 3 female heads, one of a Praxitelean Aphrodite type, one of Tyche with well preserved mural crown and one comparable with the Melpomene of the Vatican group. After a good deal of hesitation, the author is prepared to tolerate the union of the fifth and fourth centuries in the same figures and thus presents us with an extremely interesting and well dated example of eclecticism.

The argument regarding the identification of the temple is based almost exclusively on Pausanias. Octavia, mentioned by Pausanias, is ruled out on chronological grounds. The claims of two other candidates that appear in the pages of the periegete, viz. the Capitoline Triad and Fortune, are considered impartially by the author. Sadly, but no doubt rightly, she leaves the question open on the score of lack of evidence. It remains for some lucky excavator to turn up a few more letters of the dedicatory inscription or an inscribed altar or some more distinctive piece of the pedimental sculpture in order to close this serious gap in our knowledge of Corinthian topography.

The manner of presentation varies from author to author. Stillwell, through long years of experience, has learned well how to assess the evidence of blocks and how to present it most effectively. Scranton has shown ingenuity and imagination in his treatment of an unpromising theme; his reasoning, however, is sometimes loose and his language is often awkward. Miss Freeman has dealt with her material in a very straightforward and unprejudiced way. In general, it may be said that the evidence has been made readily available. Restorations of the buildings and solutions of the major problems have been proposed by the authors, but where the reader disagrees or wishes to go further, he finds the material at hand. The plans and architectural drawings, most of which have been prepared or edited by Stillwell, are in his customary clear and precise manner. The photographs are numerous and excellent. Henceforth, however, in publications of such sites where so much depends on the configuration of the terrain, we may reasonably demand an occasional airview. The volume is provided with a full index.

The publication is a good deal more valuable than it appears or purports to be. The buildings presented in it are all of known types and none of them is of outstanding interest on its own account. By working out the century-long histories of the buildings, however, and by throwing in a vast lot of incidental information, the authors have greatly enriched our knowledge of the history of Corinth, an increment particularly welcome in the case of a city for which the literary and epigraphic evidence is so meager. For something else, too, the historian must be grateful, viz. for the abundant illustrations provided of the effect on architecture, engineering and sculpture, on social and commercial life produced by the direct contact of the Roman mind with the Greek.

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A TARSUS COIN COLLECTION IN THE ADANA MUSEUM (Numismatic Notes and Monographs, No. 92), by *D. H. Cox*. Pp. 67, 12 pls. American Numismatic Society, New York, 1941. $2.00.

Out of a collection of more than eight hundred coins bought in Tarsus and Mersina by a local resident, and subsequently purchased by Miss Goldman and given to the Adana Museum, Miss

Cox has picked out for description the two hundred and forty-six whose rarity or newness merit recording. They are predominantly provincial bronze issued under the Roman Empire; there is a scattering of Hellenistic coins, and the forty-four coins of the Macedonian kings in the collection as a whole have been listed. Cilician towns are represented by one hundred and fifty-eight items, of which seventy-one are of Tarsus; obviously the contribution made to the issues of this province is great. Among the various comments and deductions which individual coins call forth in explanatory paragraphs one might mention: no. 218, evidence that the same artisan cut the dies for a coin of Valerian at Anazarbus and for one of Salonina at Tarsus; no. 225, evidence that Ariarathes IV or V of Cappadocia restruck on Seleucid flans; no. 236, evidence that the Cappadocian mints were Tyana before Archelaus' reign, and Caesarea thereafter; no. 245, evidence that the era of Gaba began in 56–5 B.C. It is regrettable that locally formed collections cannot more often receive proper attention, and we are grateful to Miss Goldman's generosity, Bey Yalgin's liberality and Miss Cox's industry for the admirable treatment which this one has received.

CORNELL UNIVERSITY F. O. WAAGE

SOVIET ARCHAEOLOGY VII (Academy of Science of U. S. S. R.: Institute for History of Material Civilization). Pp. 1–326 (with a portrait of S. A. Žebelev and numerous illustrations). In Russian, with short French résumés at the end of each paper. Moscow, Leningrad, 1941.

This current number of *Soviet Archaeology* is dedicated to Sergei Alexandrovich Žebelev, member of the Russian Academy of Science, in connection with the 50th anniversary of his scholarly activity. A few months after the publication of this volume, Žebelev died in Leningrad during the siege of this city by the Germans.

Žebelev was a prominent figure among the classical scholars of Russia. He was an excellent scholar, an able organizer, a tireless editor of various publications, and an inspiring teacher. Well known in Russia, his name and scholarly achievements are very little familiar to Western European and American students of ancient history and archaeology. No wonder. Žebelev was a convinced nationalist. Of his 293 books, articles and reviews, two short papers only were published outside Russia, one in German in *Klio* ii, 1902, pp. 36 ff. ("Zur Geschichte von Lemnos"), another in French in *REG.* xlix, 1936, pp. 17 ff. ("L'abdication de Pairisadès et la révolution Scythe dans le royaume du Bosphore").[1]

Primarily a student of Greek history in general, Žebelev at the same time, especially in the second half of his life, devoted much attention to the history and archaeology of South Russia, especially to problems connected with the origins and development of the Greek colonies of South Russia. No wonder, therefore, that the volume in his honor, containing 27 contributions by his pupils and friends, represents a good cross section of the achievements of Russian scholars in the field of ancient history and archaeology, and it is not surprising to find that three papers only are devoted to general problems of ancient history and archaeology, while the overwhelming majority of the articles deal with various aspects of the history and archaeology of South Russia, and especially of the Greek colonies of this part of Greek expansion.

I may review now very briefly the various papers of the volume in systematic order. The papers dealing with *general problems of classical archaeology and history* are as follows: V. Blavatskij discusses (pp. 189–197) the much debated problem of the Acarnanian bronzes of Lysippus. He endeavors to show, without convincing me, that the sculptural decoration of the sarcophagus of the Museo Torlonia in Rome preserved the main lines of composition of the Lysippan groups which represented the various labors of Herakles. In a well documented and excellently written paper, M. I. Maximova (pp. 199–219) deals with the architectural gardens of Italy of the late republican and early imperial times: the "flat" decorative gardens of Roman houses and villas and the elaborate parks behind the villas. The paper contains several new points of view and gives a comprehensive picture of the evolution. To my great surprise, I missed in her references the good article "Gartenbau" by Olck in *PWK.* vii, 768 ff. and the instructive papers of T. Warscher "Die Gärten von Pompeji", "Gartenschönheit", July and August, 1929. Finally M. E. Sergeenko (pp. 220–229) presents an interesting

[1] On the life and work of Žebelev see I. I. Tolstoï's short preface to the "List of Printed Works of S. A. Žebelev," 1926, and V. F. Gajdukevič in the Introduction to the volume under review (pp. 7–12), followed by a Bibliography of his printed works from 1926 to 1940 by E. Kastanajan.

picture of the technique of ploughing in ancient Italy, from the earliest times to Palladius, based especially on the literary sources, the archaeological evidence being somewhat neglected. Here again I missed the obvious references to A. B. Drachmann's article "Pflug" in *PWK.* ix, 1461 and to the well known paper of A. S. F. Gow in *JHS.* xxxiv, 1914, pp. 249 ff.

Of the papers dealing with the history and antiquities of South Russia, only one is devoted to *Scythians.* It is the excellent paper of A. Mancevič, "Scythian Belts" (pp. 19–30). In this article Mancevič has collected and studied the many remains of Scythian leather and metal belts found in Scythian graves, has compared them with representations of belts in Greek objects which illustrate Scythian life, has pointed out the important rôle of belts in the defensive armor of Scythian warriors, and has studied their religious significance. The article of Mancevič shows how important it would be to treat from the same point of view the rôle of belts in the Oriental monarchies, in Greece, Italy, Rome (*cingulum militiae!*) and Indo-European prehistoric and protohistoric Europe.

The large majority of the papers in this volume are devoted to the archaeology and history of the Greek colonies of South Russia. They may be subdivided into the following groups. A. *Economic history.* 1) V. Marti, "New Data on the Fishing Industry in the Cimmerian Bosporus, etc." (pp. 94–105) gives a good, though not new, survey of our literary evidence and a detailed analysis of the establishments of Roman imperial times for producing salted fish, recently excavated in two minor cities of the Bosporan kingdom, Myrmekion and Tyritake. Astonishing are the size and number of the tanks in which salted fish was prepared. They might have contained 4720 metrical quintals of salted fish. Add to that the tanks excavated at Chersonesus and in other places of South Russia, and one may form an approximate idea of the importance of the fishing industry in the economic life of South Russia (second only to production of grain) and of the volume of salted fish exported from South Russia to other parts of the Roman Empire. A comprehensive study of the tanks of Myrmekion and Tyritake by the same author is in print. The article contains an excellent bibliography of valuable Russian contributions to the study of the fishing industry in S. Russia. 2) Less important from the point of view of economic history, but superior as regards accuracy in observation and acumen in interpretation, is the paper of V. Gajdukevič, "A Fortified Villa Rustica on the Mountain of Temir" (pp. 45–61), in which the author reconstructs from sketchy plans and drawings of early excavations of the site, the plan of a monumental central building of a vine-estate of early imperial times in the neighborhood of Panticapaeum, similar to those typical in the territory of Chersonesus in classical, Hellenistic and Roman times. 3) With later social and economic conditions in Chersonesus (end of the Middle Ages) the fine paper of G. Belov is concerned (pp. 231–246), based on the results of his own excavations of some parts of the lower city of Chersonesus. The finds are abundant and significant. They yield an excellent picture of the social and economic life of Byzantine Chersonesus, which fully deserves the name of Byzantine Pompeii.

B. *Social and religious history.* 4) L. Matzulevič, "Who was Callisthenes, Named in the Inscription Found at Kerch in 1894?" (pp. 61–80: chapter of a comprehensive book by the author, a well known student of late Roman art, on the civilization and art of Panticapaeum in the fourth and fifth centuries A.D.) gives an acute analysis of a short inscription incised on a golden *tabella ansata* which belonged to a golden crown found in a monumental grave of Panticapaeum of early Roman times. This analysis leads the author to interesting conclusions on the character of the famous *synodoi* or *thiasoi* of the Bosporan kingdom, which were in later times closely connected with the judaizing cult of Θεὸς Ὕψιστος. 5) An interesting contribution to our knowledge is the paper of the excellent numismatist, A. Zograph, "Finds of Coins on the Sites of Presumable Sanctuaries in the Region of the Black Sea" (pp. 152–160). It gives a stimulating analysis of coins found in the sanctuaries of Achilles Pontarches on the island Leuke and on the promontory of Tendra near Olbia, and of those excavated on the site of a forest sanctuary of the great Tauric goddess near Yalta in the Crimea.

C. *Military history.* 6) The late N. Repnikov analyzes (pp. 121–128) the finds made in the Roman fortress of Aĭ-Todor in the Crimea. The finds, first interpreted by myself (*Klio* ii, 1902, pp. 80 ff. and *BullComm.* xl, pp. 11 ff.), have been somewhat augmented by later superficial excavations by V. Blavatskij, sketchily and inadequately illustrated by him in *Viestnik Drevnej Istorii* ii, 1938, pp. 321 ff. Repnikov's contention, based on

the finds and a study of historical topography of the Crimea in general, is that the fortress of Aí-Todor was never intended to be a watch fortress for the movements of the Taurians in the Crimean mountains, but exclusively an observation post for watching the pirates of the Black Sea.

D. *Topography of the Greek Cities of South Russia.* Several papers are devoted to the results of excavations of the Greek cities of South Russia. Their titles give an adequate idea of their contents: 7) A. Karasev, "Water Supply of Olbia" (pp. 129–139); 8) L. Slavin (pp. 292–307), "The Northeastern blocks of the High City in Olbia" (report on excavations); 9) R. Schmidt, "Study of the Walls of Bosporus" (dealing with three earthen walls which protected the peninsula of Kerch from the Scythians); and 10) N. Anfimov (pp. 258–266), "New Contribution to the history of Asiatic Bosporus" (report on excavations of the ruins of an inhabited place in the Taman peninsula).

E. *Art and Applied Arts in the Greek Cities of South Russia.* 11) J. Marti, "The Funeral Stelae of the late Hellenistic Period in the Bosporus as Documents for the History of Civilization" (pp. 31–44), contains a useful chronological survey of the well known funerary stelae of Bosporus, with description and reproduction of some inedita. 12) A. Ivanova, "The Funeral Sculptures with Portraits of the Deceased at Chersonesus" (pp. 107–120), is an interesting study of the local art of portraiture in Chersonesus in Roman imperial times, with due attention paid to local traits. 13) L. Charko, "Fragment of a Frieze Representing Giants Found in the Village of Tamanskaia" (pp. 81–93), discusses some fragments of a sculptural frieze (late Hellenistic?) showing Herakles and Aphrodite fighting the giants. Charko suggests that the frieze illustrates a local legend reported by Strabo (xi, 2, 10) and Steph. Byz., which tells the story of how Aphrodite Apaturos was attacked by giants and betrayed them, one by one, to Herakles, whom she hid in a cave. The fragments are small and badly preserved, and the interpretation is highly hypothetical. 14) The best article in this section is the paper by T. Knipovič, "On the History of Pottery on the North Shore of the Black Sea" (pp. 140–151), which describes and analyzes a group of vases of local production of Hellenistic times, hitherto little studied. It belongs to the well known products of Hellenistic painted pottery with floral ornaments, akin to the Hadra pottery of Alexandria, but not an imitation of it. One complete vase of this type from Olbia (reproduced in color) combines in its decoration, in a fashion typical for Hadra vases also, archaic and Hellenistic elements. Interesting but not very exciting local finds are illustrated in the articles of 15) N. Krivokurcev, "Plaster Statuette of Eros Found in Bosporus" (pp. 280–283), and 16) L. Belova, "Unpublished Coins of Chersonesus" (pp. 326–328), with poor reproductions.

F. *Epigraphy.* 17) N. Rozanova, "Unpublished Inscriptions of the Taman Peninsula" (pp. 247–252), contains six inedita in good copies but with arbitrary and unconvincing restorations (see especially the restoration of No. 1).

G. *Imported objects of art.* The pièce de résistance of this section is a fragment of a Pentelic marble torso of Dionysos, found at Tyritake. It is published and illustrated in a masterly way by 18) H. Iernstedt (pp. 174–188). She proves, with acumen and knowledge, that the statuette represents a new iconographic type of Dionysos and must be ascribed to an Attic sculptor of the first part of the third century B.C. The statuette was in all probability made at Athens and imported to the Bosporan kingdom. It might have served as the cult statue of a domestic sanctuary. A beautiful specimen of Attic r.-f. pottery—a lekythos (with inscription) of severe style, found at Olbia and now in the Hermitage—is published and excellently analyzed by 19) E. Pruševskaja (pp. 318–325). It is a product of the "Dutuit Painter," whose art has been brilliantly illustrated by Beazley and Miss Richter, and is adorned with a charming figure of Eros. Attic r.-f. vases of the same style are rarely found in South Russia. The author gives an explanation of it: Athens at the end of the sixth and in the early fifth centuries exported to South Russia not choice pieces, but common pottery. Finally, 20) E. Levi (pp. 308–317) publishes (in colored reproduction) and studies a small painted terracotta head of a man, perhaps an appliqué ornament of a Naucratite vase of the first half of the sixth century.

YALE UNIVERSITY M. ROSTOVTZEFF

ANCIENT JEWISH COINS, by *A. Reifenberg.* Pp. 51, pls. XIV. Jerusalem, 1940. Reprinted from *JPOS.* XIX (1939–40).

This useful monograph conveniently lists and illustrates the known coins, with the addition of several which have not been published before. As usual, the coins of the Herodian dynasts at Chalcis, those of the procurators and the Flavian

victory coins which were struck in Palestine have been included; three coins are assignable to the late Persian period. The text is equally divided between a discussion of the different issues and their issuers, and a catalogued description of the coins themselves. In the former it would have been helpful to have the catalogue number of the coins which are discussed in each section listed in the section headings; the latter lacks any notation of size or weight and only the obvious denominations are given anywhere. To John Hyrcanus II are attributed the bronze with cornucopiae and title "Jonathan the High-Priest," and the anchor-flower coins of Alexander restruck with that title; no new light is shed on the problem of the silver shekels, but the author has abandoned his earlier opinion of a Maccabean date in favor of the first revolt.

A sloppiness in details mars the work. Some of this may come from careless proof-reading. To note some instances: p. 10, notes 4 and 5 are transposed; p. 10, "Jesephus"; p. 22, "Eleasar"; p. 29, no. 18, read "of no. 16," not "of no. 25"; p. 39, no. 110, read "on no. 107," not "on no. 113." Other instances imply a carelessness in composition: on p. 8, coin no. 19 is said to read "Jonathan," but the description on p. 29 gives "Jehonathan"; p. 29, no. 16, "around of which"; p. 34, no. 65, "Head of Caligula," and immediately following, no. 66, "Head of Caius"; p. 34, no. 68: ΚΛΑΥΔΙ is clearly visible in the plate; p. 38, no. 93: the bust seems surely cuirassed, not "clothed" (i.e. draped); p. 38, no. 95, Nike to l., not to r.; p. 42, no. 135, "Palm-tree with two bunches of grapes"; this is one miracle not otherwise recorded, but botanical normalcy is restored in nos. 156, 189 etc. with "Palm-tree with two bunches of fruit" (i.e. dates). Carelessness is evident also in the make-up of the plates, for the normal positions of obverse and reverse (left-right or above-below) are frequently reversed, and sometimes coins do not follow the numerical order when there appears to be no reason for disregarding it.

CORNELL UNIVERSITY F. O. WAAGE

HUNTING SCENES ON ROMAN GLASS IN THE RHINELAND, by *Michael Ginsburg* (University of Nebraska Studies XLI, 2, or Studies in the Humanities, No. 1). Pp. 31, figs. 12; Lincoln, Nebraska, 1941; $.75.

Did the scope of this pamphlet justify detailed criticism, one could list a number of specific defects, as other critics have already done. Its underlying trouble, however, is simply lack of point. As a selection of facts about ancient hunting and as a pedestrian description of a handful of cut-glass vases it is doubtless accurate enough as far as it goes, and Ginsburg's documentation from obscure German periodicals is enviable (although he has omitted some citations which one would expect to find), but there is no starting-point for intelligent and analytical criticism unless one knows more than is readily apparent as to why the monograph was written at all, and who the Nebraska editors expected to purchase and read it. Had it been aimed at the constituency of this JOURNAL, it would presumably have been condensed into an article in these pages. If it represented unpublished material which Ginsburg had personally seen, or if it pretended to synthesize old material from which new and original conclusions logically emerged, then we could meet it on its own ground. But it does none of these; and to this reviewer the *exordium*, *narratio* ("It is our purpose to examine one group of these vessels—those showing hunting scenes—and to see to what extent they complete (*sic!*) our knowledge of hunting in Ancient Rome"), the *confirmatio*, and *peroratio* (which has nothing to do with hunting), are incoherent. One or two aesthetic judgments at the conclusion are not persuasive.

The mention of a legitimate audience suggests an excursus, which may somewhere evoke a sympathetic echo, upon the Forgotten Man of American classical scholarship. Without for a moment defending meretricious "popularization," classicists would do well to recognize and emulate the Teutonic knack of restating technical material in an inexpensive but authoritative form attractive to different levels of students and their teachers, to the casual museum visitor, and to the general laity. A lamentably small number can, or will, unbend sufficiently to address an uninformed audience comprehensibly. There is no question that non-technical monographs on dozens of ancient topics, if composed by the best scholars, would find a thankful welcome from a number of different kinds of readers. Thirty or forty pages by Ginsburg on ancient glass, modelled in part on Behrens' *Römische Gläser aus Deutschland* in the Mainz Museum's *Kulturgeschichtliche Wegweiser* (36 pages, illustrated; published in 1925 at 50 pfennigs) would be among the most popular of all. The appeal and distribution would certainly top that of the study under review.

HAVERFORD COLLEGE HOWARD COMFORT

CORINTH XI, THE BYZANTINE POTTERY, by *Charles H. Morgan II*. Pp. xvii + 375, 226 figs. in text, pls. LIII. Cambridge, Harvard University Press, 1942. $15.00.

A considerable number of fragments of pottery, collected at the excavations of the American School of Classical Studies at Athens in Corinth, is presented in the form of a descriptive catalogue. The material reflects the turbulent history of mediaeval Corinth. After the invasion of the Avars in 588, through the seventh and eighth centuries, Corinth was abandoned. The re-establishment of Byzantine authority at the beginning of the ninth century resulted in a rapid restoration of prosperity and local industry in Corinth. In the middle of the twelfth century, the intrusion of Roger of Sicily again disturbed the continuity of normal life. Finally, the disastrous period of the Crusades led to its gradual decline. The cultural life of Corinth came to an end in the fourteenth century.

Thus the material found both in Corinth and in Athens (partly published by Miss Alison Frantz in *Hesperia* vii, 1938) is fragmentary and does not give a complete picture of the development of Byzantine glazed pottery. Especially unfortunate is the lack of material from the earlier stages, before the ninth century.

The variability in the decoration of the pottery, of the clay used for it and of the technique makes its classification very difficult. Morgan solves this complicated problem in a very satisfactory way. His chief principle of classification is the type of decoration. The pottery accordingly falls into three main divisions: plain glazed wares, painted wares, sgraffito wares. Under these heads the 35 different types of pottery are arranged in special groups. The shape of pottery is not taken into consideration, because it does not change enough to serve as a basis for classification. The method adopted by Morgan is the only possible and logical one. A chronological division would not be practical, owing to the uncertainty of dating, and chronological overlapping of different groups.

Each group is described and characterized from the point of view of shape, decoration, and technique, together with all the possible evidence for dating. Abundant illustrations and reproductions of samples on the plates and figures in the text give an excellent presentation of the material. Taking into consideration the number (1788) of specimens examined, and the variety of decoration, material and technique, it must be acknowledged that Morgan has accomplished an enormous and very difficult task.

The publication of this catalogue of glazed pottery from Corinth paves the way for a wider study of Byzantine ceramics in general, and gives impetus to several collateral problems, such as its relation with Moslem pottery, with Byzantine toreutics and textiles. Some of the scenes represented on the fragments reflect curious subjects of mediaeval Byzantine poetry; this point has been studied recently by Miss Alison Frantz in her very important article in *Byzantion* xv.

The study of material, clay and glaze, is the only problem somewhat neglected. Only two fragments were spectro-analyzed. This method of analysis, however, has very little value for the knowledge of the exact composition of glaze. It would be highly desirable to have a quantitative chemical analysis of at least one specimen in each group. The descriptions of clay based on visual examinations alone are insufficient for an objective classification. The quantity of silica in the clay is very important for the study of the development of pottery.

In the chronological table (p. 347) the columns are slightly misleading: the third column reads from 1000 to 1100, and the fourth from 1075 to 1125.

YALE UNIVERSITY N. TOLL

LATE EGYPTIAN AND COPTIC ART: AN INTRODUCTION TO THE COLLECTIONS IN THE BROOKLYN MUSEUM, by *John D. Cooney*. Pp. 24, 54 pls. Brooklyn Museum, 1943. Paper, $1; boards, $1.50.

This useful brochure catalogues the late antique and Christian objects from Egypt in the Museum and is prefaced by a general sketch of late Egyptian and Coptic art. The notices are well bibliographed, and occasionally bring into relief some features characteristic of Egypt that are not usually emphasized in such catalogues. Such is the tilt of the head of a female head upon the neck (as illustrated in the marble head of Plate 7) and the "Coptic cross" in the Annunciation-relief on the bronze censer of Plate 34. The plate does not show the Annunciation-scene, and the "well-known type of Coptic cross" therein described may or may not be of the Egyptian *ankh* form; if the latter is true, the object adds a welcome indication as to the provenance of these censers. The two bronze altars with scalloped tops are rightly assigned to Egypt rather than to any

Asiatic provenance; additional evidence for this provenance might have been cited in a fresco of Abraham's Sacrifice at Bagawat and the numerous terracotta altars of this type found in and around Alexandria. On the other hand, the steatite mould for amulets (Plate 37) displays a type of Crucifixion (with the bust of Christ surmounting the Cross, and the two thieves) which, on the evidence of the ampullae of Monza and Bobbio, is Palestinian.

The notices contain some ventures into symbolic interpretations for which evidence is lacking. The fish-plate of Plate 36 needs only its use to explain its painted fish, without reference to the ΙΧΘΥΣ-acrostic, and it is hard to see why the stag ornamenting a textile in Plate 46 should "probably" symbolize Christ. Miss Der Nersessian is doubtless correct, *versus* the catalogue, in interpreting the figure crowning himself with a laurel wreath (*Art Bull.* xxiii, 1941, p. 166) as a victor, rather than as a "pagan symbol of a beatified deceased." The "crocodile" on which the Nereid rides in the relief on Plates 17–18 is better described as the Hellenistic sea-monster. Criticisms of this sort, some of them debatable, will not impair the favorable reception the catalogue will receive as a highly useful addition to the literature on late antique and Christian art in Egypt.

PRINCETON UNIVERSITY C. R. MOREY

GOTLANDS BILDSTEINE, Vol. I, by *Sune Linqvist*. Pp. 151, 60 text figures, 183 figures at end of volumes, 6 distribution maps. Published by the Kungl. Vitterhets Historie och Antikvitets Akademien, Stockholm, 1941. 35 Kr.

This book by a distinguished Swedish archaeologist is a memorial to three predecessors, Gabriel Gustafson, Fredrik Nordin, and Olof Sörling, whose many years of work on these remarkable sculptures dating from the fifth to the eleventh centuries A.D. in the Baltic island of Gotland, made possible the present work. It is indeed fortunate that so many scholars have given so much time to the publication of these monuments, for in many cases the carvings are in such low relief and so weathered that ordinary photography yields little or no result. Hence much of the decoration can be represented in drawings only or in photographs taken after the ornament has been accentuated—as it must have been originally—by the application of color to the stone. Under such circumstances, the large number of expert witnesses lends added confidence that the numerous excellent illustrations do indeed represent the work of the ancient sculptors of Gotland.

The first volume, reviewed here, which describes the stones, is not without certain peculiarities. Though it is Volume I, the first text figure is mysteriously numbered 203, while at the end of the book are other illustrations which begin with fig. 1. The author has also been hampered, though not seriously, by the fact that he has had to exclude from consideration the many runic inscriptions upon the *Bildsteine*. This is because, as he pointedly remarks, Professor Otto von Friesen has for many years been preparing a monograph on these runes which has never appeared. But he concludes that this does not greatly matter, since the chronology of runes is based on an outmoded system of archaeological dates. It does, however, give the reader an acute sense of frustration to see pictures of quantities of long inscriptions and not be told what they are about.

Another drawback from the point of view of this reviewer, who likes to know at once the date of everything as it is mentioned, is that the author has managed to describe his several periods and abundant material with only a tantalizing hint of a date here and there until almost the very end of the book. Here it is disclosed that his chronological scheme is as follows: Period A, fifth century; Period B, sixth and seventh centuries; Period C, 700 and later, no final date being specified; Period D, 750–1000; Period E, the only Christian one, the eleventh century.

The stones themselves are memorials to the dead, but their archaeological context is to be discussed in Volume II. The monuments are flat slabs of widely varying size, from what the author calls "dwarf stones" to impressive monuments up to 14 feet high. Among the elaborate ornaments ships play an important part, as indeed befits the sculpture of an island which was so famous a center of ancient maritime trade. The stones of the fifth century show large ships with oars but no sails. These vessels resemble the famous and approximately contemporary Nydam ship now preserved at Kiel. They also have some features in common with the Sutton Hoo ship, found in 1939 in Suffolk, with the vast treasures of an Anglo-Saxon king.

In the sixth and seventh centuries other types of ships occur, and the sail first appears. Some of these resemble a type of ship with a sail that

occurs in sculptures on Roman sarcophagi, and the author suggests that the vessels themselves show that by this time the influence of Roman ship-building had filtered into the Baltic. In the eighth century there occurs a type of ship that Linqvist believes is derived from the famous rock-carvings of Scandinavian ships of the Bronze age. The ships in the Bronze age rock-carvings—which are sailless—have high prows and sterns often in the shape of animal heads and tails, but with a long projection fore and aft resembling a ram. This is their most striking characteristic, and since it is not present in these later Gotland ship carvings, it is rather hard to see wherein the resemblance lies to what the author calls his "Hunningetypus."

In the eighth century the standard Viking ship also appears, the *langskip* of the sagas, which resembles the famous Gokstad ship preserved at Oslo. Linqvist compares it also to the Oseberg ship, the most famous of all these old vessels that are still in existence. But the Oseberg ship, while of the same general type, was a queen's yacht, and hence not entirely comparable with a man-o'-war. On some of the Gotland stones we see magnificent renderings of these vessels which have, like their Bronze age predecessors, towering prows and sterns in the form of animal heads and tails. They ride high on tremendous breaking waves, while above them are huge square sails. They are manned by crews of mysterious and solemn personages with conical helmets and pointed beards, whose shields line the gunwale. Who they are and on what errand they are sailing one can only guess.

In the eighth century also there often occurs above the ship a mounted warrior, to whom a Valkyrie offers a drinking horn. This evidently represents the arrival of the warrior in Valhalla, "the hall of the slain" and the abode of the champions that Othin is gathering to defend him from the powers of evil. The duty of the Valkyries was not only to choose the champions of Othin from the slain on the battlefield, but also to serve them with mead in Othin's hall. Other stones show the warrior arriving, accompanied by his hound and falcon, while in the background other warriors engaged in battle, the chief pastime of those who dwelt with Othin. This stock scene of the Valkyrie welcoming the warrior with the mead-horn was still used on tombstones by Christian sculptors of the eleventh century.

These carvings, however remote geographically and artistically from the classical world, still show the influence of Roman sculpture of some centuries earlier. There is a thread of connection between the Valkyrie with the drinking horn and the Roman Victoria, a thread which probably runs from Germany through the "Roman Iron age" of Denmark to the Baltic. This is verified by the discovery of a fragment of a Lombardic helmet of about 600, where such a horn-bearing figure is labelled VICTVRIA.

Another feature of Roman sculpture that echoes in Gotland in the eighth century is the person holding up a wreath behind the principal figure. But in the Baltic the wreath-bearer is another adjunct of the horseman as he enters Valhalla. Still the quoit-like object that he grasps can hardly be the classical laurel wreath. Perhaps for the Scandinavian sculptor it was one of those large gold rings so familiar both in Northern archaeology and legend. On a later group of stones dating from the eighth to the tenth centuries there sometimes appears a warrior on an eight-footed horse. This is Othin himself on his steed Sleipnir. On another stone at Ardre the magic smith Weyland may be represented as he leaves his smithy in the form of a bird, while behind it lie the headless corpses of the sons of Nithad, from whose skulls Weyland has made cups for their unsuspecting father.

Another scene on the same stone may represent Thor fishing for the Midgarth snake. The story to which this scene refers tells how Thor, knowing that the snake would destroy him at the twilight of the gods, set out accompanied by a giant to catch the monster with a hook baited with the head of an ox. In the meantime, the giant fished for whales. This scene is represented very clearly on the famous sculpture at Gosforth in Cumberland. On the stone in Gotland there are as in Cumberland two men in a boat, but the object in the water is much less certainly an ox-head, and the whales depicted on the British stone are missing. On the whole, it would be well to reserve judgment as to whether the Ardre stone really represents Thor fishing.

These stones, especially from the eighth century onward, exhibit much more complex iconography that is very hard to interpret. The finest of them all is one at Lärbro St. Hammars, dating, according to Linqvist's scheme, to about 700. It has below, the conventional ship, and above, a long series of scenes obviously telling a story. The author suggests that it is the tale of

Hedinn and Högni and of how they came to fight forever an endless battle on the island of Hoy in the Orkneys. The cause of the battle was the kidnapping of the lady Hildr, who subsequently tried to prevent the fight by the offer of a gold ring. That such a story was represented in art of about that time is evident from the lay of the ninth-century poet, Bragi, to the shield of the famous Viking, Ragnarr Lothbrok. On this shield the story of Hedinn and Hogni was portrayed. The difficulty is that this tale has come down to us only as a synopsis of what must have been a much fuller narrative. If the sculptures of St. Hammars, like Ragnarr's shield, represent this tale, they are based on the more complete—and lost—version. The scene on the stone that comes closest to the story is one in which a lady stands between two bands of sword-waving warriors, one band being on a ship and the other ashore. But it cannot be said that she holds a ring. On another stone this same scene is repeated, and whatever the lady holds, it is clearly not a ring.

The author makes one other assertion about the St. Hammars stone which is even more open to doubt. He declares that the interlacing border shows Irish influence. Since Scandinavian contact with Ireland did not begin until a century after the date he assigns to this stone, and since the Irish contact was with Denmark and Norway rather than with Sweden, it seems highly unlikely that this type of ornament was imported from such a distance. Indeed, the idea of interlacing ornament was very widespread in Europe at this time. Once artists became accustomed to using the interlace, it is not very remarkable if the same rather simple developments of it were evolved independently in different places at different periods.

On the whole, however, Linqvist's book is one of absorbing interest, and throws much needed light on a peculiarly fascinating aspect of the ancient Baltic. He remarks that Swedish archaeology has now passed the typological phase, in which scholars sought to apply the principles of biological evolution to a series of archaeological objects. According to the new outlook, it is realized that the development of man's handiwork is not governed by any such precise laws as the typologists of the old school sought to discover. Archaeologists in the American field, who divide pots into species and genera, and who occasionally find that they have assigned sherds from the top and bottom of the same pot to different species, might take a leaf from the book of their Swedish colleagues.

H. O'NEILL HENCKEN
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THE TICKHILL PSALTER AND RELATED MANUSCRIPTS, A SCHOOL OF MANUSCRIPT ILLUMINATION IN ENGLAND DURING THE EARLY FOURTEENTH CENTURY, by *Donald Drew Egbert*. Pp. xi+232; pls. CXII and frontispiece in color. Published by the New York Public Library and the Department of Art and Archaeology of Princeton University, 1940. $30.00.

It has long been the custom in Europe to honor the outstanding manuscripts in public and private collections with handsome scholarly monographs, luxuriously illustrated. Although some of our own scholars have participated in such studies of European treasures, very few indeed of the manuscripts owned in America have been presented in this fashion. To the magnificent publications of certain Morgan manuscripts, and to the scholarly editions of Freer and McCormick Greek codices issued by the Universities of Michigan and Chicago respectively, it is now a pleasure to add this beautiful volume published to celebrate the acquisition by the New York Public Library of a remarkable example of English medieval book-illumination.

The publication was supported jointly by the New York Public Library, the Department of Art and Archaeology of Princeton University, and the American Council of Learned Societies. The handsomely printed text and the binding are the products of the press at the New York Public Library, which is to be congratulated on the work. The considerable dimensions of the book are imposed by those of the manuscript itself, the pages being reproduced in facsimile size—a necessity for any proper understanding of illumination. The collotype plates include every miniature and a selection of the ornament of the Tickhill Psalter, and these are excellent in every respect. It is, therefore, a matter for regret that the plates devoted to related manuscripts fall very much below this standard. Most of these plates are all but useless for minute stylistic comparisons, and reference to Millar's work on English miniatures will indicate the extent of the loss. This is particularly serious in the case of illuminations not reproduced in other publications. The author in the Preface makes some allusion to this unevenness of quality, and one can only assume

that possibly war conditions prevented the bettering of the photographs.

I have already commented upon the beauty of the typography, so I hope that it will not seem ungracious in the face of so splendid a publication to make an urgent suggestion for future large volumes of this nature. A text line of seven inches is altogether too long for fourteen-point type. The Appendices of this book, arranged in double-columns in a type two points smaller in size, are far more readable than the main chapters. No one can dispute the superior beauty of pages designed in a solid block of type, but if this is desired in so large a book, we should take a tip from similar English publications and resort to much larger letters and more generous leading. The alternative is the excellent German custom of printing the text in handbook form to accompany a folio of plates. It is to be pointed out that this criticism of over-extended lines applies not only to the present volume, but to many another art publication issued in this country in recent years.

The monograph describes and illustrates a richly illuminated English Psalter of the early fourteenth century that first came to public notice at the Lothian sale in 1932, the year in which it was acquired by the New York Public Library. This manuscript is exceptional on several counts: in addition to the great variety of its decorative features, it contains a series of some 482 scenes, largely in the lower margins, of which all but the first fifteen represent incidents in the life of David. Not only are these scenes iconographically unique, but there exists no David series of comparable fullness. The continuity almost suggests a motion picture. At that, the series is not complete, for the manuscript was left unfinished and spaces are provided for another 170 pictures. That such a work should abound in freshness and originality is obvious. The uncompleted condition of the book in itself intrigues the student, revealing as it does the spirited quality of the under-drawing and the method of procedure of the illuminators. A detail that has aroused particular interest is the preservation on a fly-leaf of a mid-fifteenth century inscription stating that the writing and "gilding" of the manuscript were the work of John Tickhill, "formerly Prior of the monastery of Worksop," near Nottingham.

Egbert undertakes to give as full an account as possible of all the factors—artistic, historical, liturgical, literary, and physical—bearing upon the New York codex. But he goes farther than this and includes detailed studies of seven other manuscripts closely related artistically and in other ways to the Tickhill Psalter. These manuscripts are the splendid Psalter of Queen Isabella in Munich, the Grey-Fitzpayn Hours in the Fitzwilliam Museum, the Welles, or so-called "Greenfield," Apocalypse in the British Museum, the Bardolf-Vaux Psalter in Lambeth Palace, the Guisborough Breviary and Missal in Douai Abbey, Woolhampton, a section of the Ormesby Psalter in the Bodleian Library, and a manuscript of Commentaries on the *Liber Sextus Decretalium* in St. John's College, Cambridge. For three of these associated manuscripts, in addition to the Tickhill Psalter, Egbert's description is the first detailed study to be made. His revelation of the close interrelationship of these books enables him to establish the existence of a distinct school of secular illuminators working during the first quarter of the Fourteenth century, at various places, generally in the diocese of York, in the region of Nottingham. Since scholars have thus far singled out only two important schools of early fourteenth-century illumination in England, it will be seen that Egbert's book is of far more significance and of broader usefulness than the traditional "monograph" on a fine manuscript.

Egbert's procedure is clear and orderly. He devotes a chapter to each of the eight related manuscripts, commencing with a particularly full one on the Tickhill Psalter. For each codex he discusses in turn, with abundant documentary references, such facts as are known about the original owner and location, with the historical data surrounding them, the evidence for date, the history of the volume, the nature of the text, liturgical peculiarities, if any, and their indications, the illustrations and ornament. For each manuscript there is also an appendix, itemizing in detail the materials on which the chapter discussions are based. These appendices include bibliography, physical data concerning the materials and make-up of each book, collation, marginal and other inscriptions, history of the volume, detailed textual analysis, detailed description of ornament, investigation of heraldry with genealogical data, descriptions of miniatures, comments on costumes, architectural forms, etc.

Even this bare outline will suggest that there is a certain amount of repetition—and indeed there is a great deal of repetition, not only in the

arrangement of the book but within parts of the text itself. This repetition is sufficiently characteristic of the work to deserve comment in a review, but I see no reason to censure it. Aside from adding measurably to the bulk of the volume and probably being annoying to people easily annoyed, it has commendable features. Relatively few people sit down and read such a book as this through—its most general use will be for reference. For this purpose the various chapters and appendices will be more useful because of restatement of relevant data that is developed elsewhere. Much of the repetition is attributable also to another excellent aim of the writer—and that is clarity. The author is one of those who announce they are going to say thus and so, then they say it very carefully, and finally announce that they have said it—an unsurpassed pedagogical technique. Each chapter has a summary of its conclusions preliminary to the detailed discussion, and ends with a restatement of them. There are similar preludes and postludes to the book as a whole. The appendices summarize material expounded in the chapters, and the chapters summarize data detailed in the appendices. This all takes up room, but leaves no doubt at all of what the author means to say and what position he takes. Of how few books can this be said!

Throughout this work one is conscious of the tireless industry and the conscientiousness with which Egbert has assembled his materials. Although apparently the members of the Tickhill Psalter group (with the exception of two) were gathered together in the first place because of evident resemblances of style, the author devotes the greater part of his efforts to showing—and very impressively, I think—in how many other ways the manuscripts were interrelated. He leans very heavily on evidence from heraldry, genealogy and local history. Into the mysteries of Rolls, Registers and county histories he has plunged with energy and produces from them data on a prodigal scale. In fact, the multitude of specific years, mileages and relatives, and the ingenuity with which the author weaves them into likely hypotheses, almost dazzle the reader into feeling that more has been proved than is the fact. This is in no way Egbert's fault—his conclusions are always cautiously stated and carefully qualified. It is merely a tribute to the fertility and brilliance of his hypotheses and the readiness with which he turns up records that support them.

Egbert uses his historical documentation largely in attempting to establish the original owners, and to determine the date and locale of production. This last problem is tackled also, of course, with the help of the liturgical evidence in the various books. The definite facts established, plus the vast mass of circumstantial evidence adduced, demonstrate fairly convincingly that the eight books in question were produced at various times between 1300 and 1325, that all but one were executed in central England, four of them probably in the Episcopal diocese of York, and that they seem to have been made for several families interrelated by marriage and in two cases for Augustinian monasteries. It is pointed out that the families concerned in several cases were also patrons of Augustinian houses and that their books show some evidence of Augustinian connection.

Just what do we know in the way of cold facts about the origin of these eight related books, as distinct from fascinatingly detailed hypothesis? Leaving aside the Tickhill Psalter for the moment, the definitely known data about the dates and provenance of the others boils down to about the following:

Psalter of Queen Isabella: Unquestionably made for Isabella, Queen of Edward II, as evidenced by heraldry; made between May, 1303 and January, 1308, as proved by internal evidence. Calendar points to York diocese.

Grey-Fitzpayn Hours: Family attribution shown by heraldry; identification as marriage manuscript of Sir Richard Grey and Joan Fitzpayne has a very slight degree of doubt, likewise because of heraldic eccentricities. If this is cleared, the date definitely is prior to 1308. No proof of provenance.

Welles Apocalypse: No proof of original owner, exact date or provenance. Late fifteenth-century inscription indicates book was then in Lincolnshire in the region of Well; another inscription shows ownership in early sixteenth century by Celia Welles, widow of Sir John Welles, owner of Well in Lincolnshire.

Bardolf-Vaux Psalter: Heraldry shows original ownership by a lady connected with Vaux and Moels families, who was married to a Bardolf gentleman. Calendar and Litany indicate diocese of York and perhaps Augustinian connection. No evidence other than stylistic for date.

Brewes-Norwich Commentaries: Heraldry celebrates East-Anglian families and stresses the connections of Robert Brewes and of his wife, Katherine Norwich. He died in 1325.

Guisborough Breviary, Missal and Psalter: Shown by liturgy to be for Augustinian use and executed for Guisborough Priory in northern Yorkshire.

Ormesby Psalter: The book was worked on at different times from the late thirteenth century on. Presented to Norwich Cathedral Priory by the monk Robert Ormesby in 1325, according to a contemporary inscription. Heraldry includes Bardolf and Foliot arms, but there is no marriage recorded that identifies intended owners further. Only one page has any presumable stylistic relation to our group.

On and around these sparse and not too coherent known facts, Egbert has woven his complex fabric, by diligent examination of a host of materials and by speculation on all factors of possible relevance. And, as I have indicated, he has on the whole made out a remarkably plausible case. The critical eye will note many tenuous threads in what seems so well-knit. One wonders, for instance, if he does not sometimes push his heraldic indications too far in seeking for relationship between the owners of various books. Some of the relationships produced from the abundant heraldry seem too devious and remote to be of any significance in connecting the manuscripts—particularly when one remembers that in the little England of the fourteenth century practically all families of the lesser nobility were related to some degree. As is known, the English loved heraldry enough just to use it sometimes as sheer decoration, selecting the coats of prominent families of the realm or of the immediate region. In any case, gleanings from coats scattered lavishly throughout the decoration of an English manuscript have nothing like the weight of data derived from arms given special prominence or associated with owner-portraits.

How completely is the case for provenance proven? Only three of the seven manuscripts related to the Tickhill Psalter have *definite* indications for the diocese of York: The Psalter of Queen Isabella, the Bardolf-Vaux Psalter, and the Guisborough Breviary. The narrower localization of the atelier in the neighborhood of Nottingham reduces itself to two of the seven books: the Grey-Fitzpayn Hours and the Bardolf-Vaux Psalter. This more precise localization is really a matter of plausible speculation, even so far as these two Psalters are concerned. In speaking of them, the author alludes to "the distinct possibility that the Grey-Fitzpayn Hours was executed in Codnor, and the Bardolf-Vaux Psalter near Stoke Bardolf, both in the neighborhood of Nottingham," these being important estates of the families indicated by the heraldry. The desire to connect as many manuscripts as possible with Nottingham arises, of course, because of the inscription in the Tickhill Psalter which states that the book was written and gilded by John Tickhill, at one time Prior of Worksop, which is near Nottingham.

This brings us to the "cold facts" presented by the Tickhill Psalter, which I have not yet analyzed. They consist of the inscription just mentioned, the indications in the Litany, and the heraldry. Egbert has looked up the registers of York diocese and has discovered various facts about Worksop and about Prior Tickhill. It seems he was installed as Prior in 1303 and removed from office "for incontinence and dilapidation" in 1313. The author suggests that the Psalter was put in hand during Tickhill's administration, both on the basis of certain date limits imposed by the heraldry and because of the resemblance of the miniatures to those in two books of this group executed before 1308. He takes the inscription to mean that Tickhill wrote the text of the Psalter and perhaps gilded the small text-initials.

The inscription, however, is not a colophon by Tickhill himself. It was inscribed about 150 years after the apparent date of the Psalter, and it is on a gathering distinct from the rest of the book. The question arises as to its reliability. Egbert writes: "There is every reason to accept the fifteenth-century inscription on the fly-leaf of the Psalter, which states that John Tickhill was its scribe, because, as will later be shown, the Litany offers definite evidence that the manuscript was written for Worksop Priory." Now, in discussing the script we are informed that "the text seems to have been written by a single hand, except, possibly, the last quire which is written in ink of a different color." When we turn to the discussion of the Litany, with its indications for Worksop, it develops that the Litany is on the very last quire which "was perhaps not written by the hand of John Tickhill, for the ink in this last quire has a greenish tint that is not found in the rest of the manuscript, and the form of some of the letters appears to be slightly later in character, though certainly by a hand of the early fourteenth century."

So there we are. Even the inscription and the

Litany turn out to be circumstantial evidence, so far as the miniatures go, for the miniatures do not extend to the last quire. There is always a question as to exactly what a mediaeval colophon (even a contemporary one) covers in assigning credit to a particular artist or scribe, but when the lapse of a century and a half has blurred events, it is even harder to be certain as to just what the "scripsit" referred. We assume it meant that Tickhill wrote the whole book—but maybe he merely added the Litany to a Psalter already written—a Litany that conformed to the use of his Priory. The work on the book obviously was interrupted before the illumination was finished, and it lacks a calendar. Maybe it came to the Priory in this unfinished condition, just as the Ormesby Psalter came to Norwich Priory in 1325 and was finished there. All this is merely speculation, but the point is that the localization is not secure enough to exclude it. And if we hope for help from the heraldry, we shall be baffled again. Of the twenty families represented by the twenty-eight shields, "none of them, surprisingly enough, seems to have had any direct connection with Worksop Priory." In particular, there is no sign of the arms of the Lovetots, the founders of Worksop, nor of the Furnivals, chief patrons during Tickhill's time. The author suggests that "many of the shields are those of families that are known to have been benefactors of other Augustinian houses, which doubtless is the reason for their inclusion in the Tickhill Psalter." Aside from the question as to whether a priory would have gone out of its way to honor every place's patron but their own, these "many families" are reduced in number to only nine of the twenty shown, and this includes the King, whose arms must be assumed to appear merely as a national symbol.

Although throughout Egbert's book the Tickhill Psalter is assigned to Worksop and to Tickhill without reservation, it thus appears, on breaking down the facts, that the attribution is by no means so incontrovertible. It remains a likely attribution on the basis of circumstantial evidence. Although the "definite provenance" of the Psalter is frequently used by the author to help in localizing other members of the group, it may seem better to reverse the procedure. The plausible establishment of the other manuscripts in Yorkshire, and whatever evidence there is for possible connections of some with the Nottingham region, are important arguments for the relevance of the Worksop Litany and the Tickhill attribution to that part of the Psalter containing the miniatures. If a good many of the historical, heraldic and geographical details turn out to be likely but circumstantial evidence for the interrelation of these eight manuscripts, then what sure evidence is there for the establishment of these manuscripts as a group produced by a coherent atelier of artists? One finds the answer in countless allusions throughout the book: the most obvious common factor is the artistic style.

What are the characteristics of this style? How does it differ from East Anglian style? To what extent does it resemble it? How does it differ from the style of the Queen Mary Psalter? How many artists comprising the atelier can be distinguished? What work of each can be identified in the Tickhill Psalter? What in the related manuscripts? Does there appear to be a chief or master in the group? Is there a stylistic development discernible in the atelier as a whole, or in the individual hands during the quarter-century in which these books were produced? Egbert does not say; he neither asks these questions nor answers them. The references to style as a general factor are numerous, but there is no definition of what this style is. Descriptions of *details* of ornament are full and meticulous. The author even diligently lists and gives folio locations for each example of such categories of things as hybrid beasts, interlaces, human heads (male and female)—not to mention more significant but still overly labored tallies of foliate ornament (natural and conventionalized), line-endings and marginal bars.

Despite the exhaustive treatment of such matters, any actual discussion of style as such is compressed into less than a page of Appendix I, beginning on page 147. It consists largely of generalized remarks about some of the variations in ornament in different sections of the Tickhill Psalter, the method of shop procedure revealed by the unfinished pages—all this being intended to show merely that several artists were employed in illuminating the book, a very obvious fact. Then there is a paragraph mentioning "several variations in the figure style," but woefully inadequate for so important a subject. The only significant attempt to meet the issue at all is contained in one brief paragraph where the author does isolate one of the artists—the one responsible for the rich full-page initials on folios, 51 recto, 64 verso, and 78 recto. He states that "the identical technique is found also on faces in the Grey-Fitzpayn Hours (e.g. Pl. XCVa), in the Welles Apocalypse

(e.g. Pl. XCIX), and in the Bardolf-Vaux Psalter (e.g. the initial of Pl. CI-b): and it is probable that the same artist worked on all four books." Reference to the plates (or to the better ones in Millar) will show that it is not only "probable," but it is *evident* that these are works of the same artist. One may add that this easily identifiable hand also executed an initial on folio 50 recto (also mentioned by Egbert), and decorative heads on folios 36 verso, 44 recto, 58 recto, 59 recto, 71 verso, 88 verso, and 90 recto. Pages in the Grey-Fitzpayn Hours illuminated by this same artist are reproduced on plates 48 and 49 of Millar. The large initial on plate 48 is by another hand, but our artist is clearly responsible for the decorative heads on the Grey-Fitzpayn pages reproduced on plate XCVII of "The Tickhill Psalter," details which Egbert only asserts to be derived from the same "pattern-book" as that used in the Tickhill Psalter.

Egbert was so very right in his one identification of a definite artist (even though over-cautious about it) that it is a great disappointment to find him winding up his brief remarks on the subject thus: "The other human faces in the Tickhill Psalter are closer in style to those of the Isabella Psalter and the Guisborough Breviary, though apparently not by the same hand." He then declines to attempt "the controversial task of further delimiting the styles of the individual craftsman," and bows the subject out by reiterating that there can be no doubt that a group of artists was employed on the illuminations of the Tickhill Psalter, and that some of the artists worked on some, at least, of the other manuscripts.

I confess that I am puzzled why the author should be so much more afraid of the controversial task of examining the miniatures critically than he is of the equally impressive controversies of heraldry—especially when he did so creditably with the one artist he isolated. Perhaps he does not recognize that the miniatures are quite as much a document and a "fact" as the heraldry. What, one may ask, is the use of bringing all the powers of history, liturgy, genealogy, and faithful description to bear upon the problem of successfully isolating an atelier of artists, and then decline to have any curiosity about the art they produced? One has an uncomfortable feeling that Egbert did all the hard work and then left the fun to people who wander in.

This is hardly the place to take over and reconstitute the other artists of the group. Perhaps it is enough to point out that in giving up so easily on the question of definite artistic relationship between the Tickhill and Isabella Psalters, the author missed rich rewards. He directs attention, at one point, to marginal grotesques on the Beatus page of the Tickhill Psalter (Pl. V) which are "from the same pattern-book" as the grotesques on the corresponding page of the Isabella Psalter. As usual, he is absolutely right, but he misses the fact that these pages and the opposing ones in the two books are historiated by the very same hand (it is necessary to use plate 45 in Millar to see this). Moreover, the pastoral scenes of David at the bottom of both Beatus pages are either copies one from the other or from the same model. The same artist has illustrated at least four of the other Isabella pages reproduced by Egbert. One could press these matters further, but the point is made that Egbert's conclusions are substantiated most strikingly, even by evidence that he chose not to rely upon.

WALTERS ART GALLERY DOROTHY MINER
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During the last fifty years Mesopotamian antiquities, both inscribed clay tablets and archaeological objects, notably seal cylinders, have been brought to this country in considerable numbers. They are scattered over the country in libraries, museums, and in the hands of private collectors. All these pieces are source material for the political and cultural history of the Ancient Orient. Experience has shown that among them are unique pieces of great scientific value. It seems time that these documents should be made accessible to science. For this purpose it is planned to conduct a survey and to compile a list of all this material. As a preparatory step, all those who own such objects, even if only a few, are invited to communicate with:

Albrech Goetze *or* Ferris J. Stephens

Babylonian Collection

Yale University Library

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